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ABSTRACT

This document is a compilation of completed research in the areas of health, physical education, recreation and allied areas for the year 1966. It is arranged in three parts: An index, a bibliography of research published in periodicals, and listings and abstracts of unpublished masters and doctoral theses. The index contains cross references for all listings in the bibliography and unpublished theses, and the bibliography contains references of published research, citing articles published in 113 periodicals. The section on theses abstracts contains listings and abstracts of masters and doctoral theses for 54 institutions offering graduate programs in health, physical education, recreation and allied areas. There is a total of 560 references in the bibliography of 631 listings and abstracts to doctoral and masters theses. (HB)

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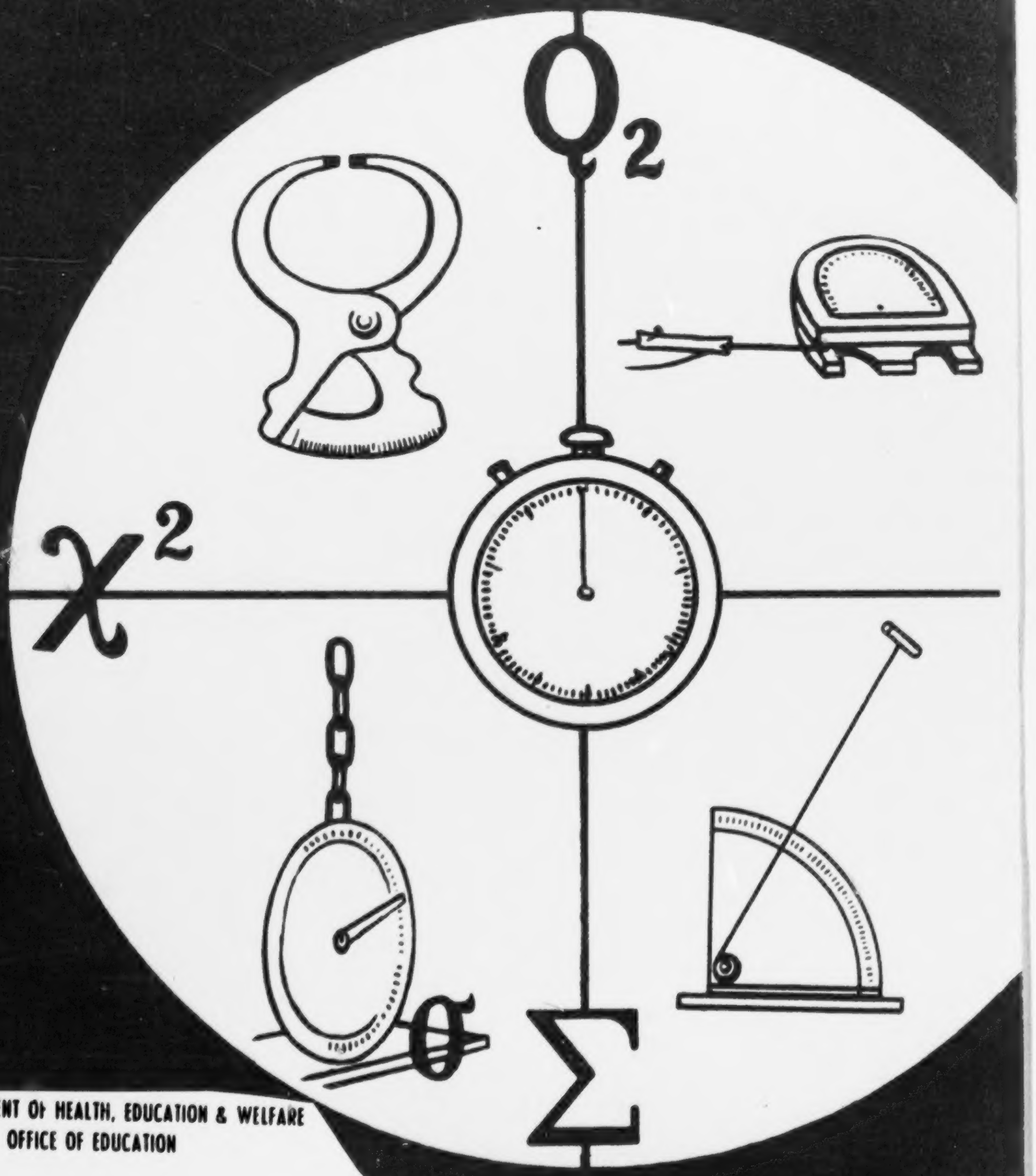

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DEDICATED to the International Council on Health, Physical Education, and Recreation by its United States member, the American Association for Health, Physical Education, and Recreation, to share this compilation with other member organizations of ICHPER and thus to extend knowledge in these fields. This annual volume is published in keeping with ICHPER's objective of exchanging research among professional workers throughout the world and furthering advancement in health education, physical education, and recreation.

INTRODUCTION

This compilation lists research completed in the areas of health, physical education, recreation, and allied areas during 1965. It is arranged in three parts:

I. Index. In this section, cross references are given for all the listings in Parts II and III. References are arranged under the subject headings, which are in alphabetical order. Instructions for using the index are given at the top of page 1.

II. Bibliography. This is a listing of published research, citing articles published in 113 of the 173 periodicals reviewed by the Committee for Completed Research. The periodicals reviewed are listed on pages 142 through 144.

III. Theses Abstracts. Unpublished master's and doctor's theses for 54 institutions offering graduate programs of health, physical education, recreation, and allied areas. Institutions reporting are listed on page 145. Most references are accompanied by abstracts of the research and all are numbered in alphabetical order according to the institution. Names of institutional representatives sending in these abstracts are indicated in parentheses after the name of the institution; major professors are in parentheses after each reference.

Theses abstracts are sent in by the institutional representatives, and are then organized, indexed, and edited by the chairmen of the Committee for Completed Research. Universities and colleges are encouraged to submit abstracts of theses completed at their institutions in the year 1967 for inclusion in the next issue of Completed Research. Material should be sent to the chairmen of the Committee on Completed Research.

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Committee on Completed Research

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PART I—INDEX

This Index enables the reader to refer to the items of completed research listed in Parts II and III. Research topics are arranged in alphabetical order. The reference numbers following each topic correspond to the listings of completed research dealing with that topic. The capital letter B indicates a reference to be found in the Bibliography (Part II); the capital letter T indicates a reference to be found in the Theses Abstracts (Part III).

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PART III—THESES ABSTRACTS

University of Alberta, Edmonton, Alberta, Canada (M. L. Howell)

1. BRADY, Paul R. J. The relationship of introversion-extraversion to physical persistence. M. A., 1966. 81 p. (M. L. Howell)
The relation of introversion-extraversion to the amount of work decrement, reminiscence, persistence, and the rate of work decrement was investigated on 72 male freshmen at the University who were selected on the basis of the Maudsley personality inventory. Introverts and extraverts differed significantly in work decrement and persistence on some tasks but other findings were inconsistent with the hypothesized results.

2. CARROLL, Peter J. An evaluation of heart rate response to exercise on the constant work load bicycle ergometer. M. Sc., 1966. 62 p. (R. B. J. Macnab)
Exercising at different pedaling rates within the prescribed accuracy of the ergometer elicited significantly different heart rates and respiration rates during steady state work. Changing the length of the pedal arm within the available adjustments did not alter the heart rate or respiration rate significantly during submaximal, steady state work. For work loads at 1000 kpm/min. intervals, the ergometer was sensitive enough to distinguish 100 kpm/min. differences but not 50 kpm/min. differences. The ergometer gave reliable results when pedaled at a constant rate.

3. FAIRBANKS, Lee S. A normative study of selected track and field events for Edmonton high school boys. M. A., 1966. 107 p. (R. G. Glassford)
Percentile norms for the 100-yd. dash, mile run, running high jump, running long jump, and 8-lb. shot put were derived from testing 2,941 senior high school boys in Edmonton. Significant mean differences resulted for the mile run on grass and cinder tracks, for the high jump by the straddle, scissors, and Western styles, for the long jump with and without the take-off board rulings, and for the shot put by the O'Brien and older styles.

4. GIBSON, W. Garnet. Evaluation of outdoor education using Guttman scales and sociometric analysis. M. A., 1966. 312 p. (W. D. Smith)
Attitude and sociometric questionnaires were completed by grade 6 students who attended the 1964 and 1965 pilot projects in school camping. The attitude scale results indicated that student attitude improved greatly in the areas measured, "reality shock" was evident but not a major factor, girls evidenced stronger interest than boys, 52 percent scored high in interest even though little change in attitude was evident, and the gain in 1965 over 1964 was outstanding in all but two areas. The sociometric data showed that placing students in cabins according to sociometric status improved group cohesion, reduced isolates and neglectees, and provided greater opportunity for students of low rank to gain self-esteem and assume leadership roles while students with high rank had to compete more vigorously for a position of leadership.

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The profile technique proved highly objective for evaluating basketball performance. A high school manager could rate high school players accurately after one practice application and unfamiliar players accurately after two practice applications. Valid evaluation of grade 10 boys was possible in 10 min. when subjects were carefully matched. Validity was established by the curricular method. The profile technique could be used as a test, as a measure of basketball ability over four or more games, and as a basis for gross inferences regarding basketball ability in single games.

6. LOISELLE, Denis. The effects of various thermal environments on selected physiological variables. M. Sc., 1966. 75 p. (R. B. J. Macnab)

Heart rate, internal temperature, and surface temperature were measured on 12 adult male subjects riding a bicycle at high, medium, or low work loads, 50 or 80 percent relative humidity, and 25 or 29 C. Temperature affected all three measures; heart rate and internal temperature responded to work load; humidity primarily affected surface temperature, although interaction of ambient temperature and relative humidity was evident. However, the effects were not significant within the ranges tested.

7. LUCAS, W. Geoffrey. Strength of Edmonton school children. M. A., 1966. 157 p. (M. L. Howell)

The strengths of the major areas of the body were measured in random samples of male and female children ages 7 to 15 years. The mean strength for female samples increased slowly until age 10, increased rapidly for two years, and showed little or no gain from age 13 to 14. The mean strength for the male samples increased slowly and steadily until age 12 when no change to age 13 was followed by a rapid increase. Males were generally superior to females of the same age. Percentile norms were prepared for all measures relative to age, height, and weight. Comparisons with previously reported standards were generally favorable for the females but not for the males.

8. MARTENIUK, Ronald G. The effects of pre-induced muscular tension on motor performance. M. A., 1966. 76 p. (M. L. Howell)

The purpose was to investigate the effect of prior activation, or pre-induced muscular tension on reaction time in a simple and a complex task. Movement time was also measured for the complex task. Freshman university students (N = 92), 46 for each task, performed eight trials at each of five tension levels. Prior tension produced no facilitation of reaction time for either task. Excessive tension increased reaction time in the complex task significantly but did not increase simple reaction time significantly. Movement time increased linearly with increased tension.

9. NICHOLSON, Randolph R. Physical education and sports in an emergent territory: Influences of British tradition and changes following independence. M. A., 1966. 96 p. (M. L. Howell)

The influence of political, social, and economic factors on the development of physical education and sports in a colonizing territory (England) and a former colonial one (Ghana) were assessed. The study was also designed to assess the nature and scope of developments achieved in physical education and sports after independence was gained in Ghana.

10. NORMAN, Robert W. K. Age differences in the work capacity of Alberta secondary school students as measured by the Astrand

predicted maximal oxygen intake test. M. Sc., 1966. 145 p. (M. L. Howell)
The purpose was to establish norms and to determine age differences in work capacity as estimated by the Astrand-Ryhming nomogram for predicting maximal oxygen intake. The investigation involved 417 secondary school females and 499 secondary school males ages 14 to 21 years. The subjects at each school were selected by random numbers. Three percent of every secondary school population in 44 towns and cities in Alberta were tested. These towns and cities were chosen by the Edmonton branch of the Dominion Bureau of Statistics and were considered representative of the Alberta population on a socioeconomic, geographic, industrial, and population-density basis. No significant differences were found among any of the age groups in predicted maximal oxygen intake whether expressed per kilogram of body weight or in liters per minute for males or for females.

11. SCHUTZ, Robert W. The effects of various warm-up procedures on acceleration, velocity, and muscular endurance. M. Sc., 1966. 61 p. (P. N. Paez)
Analysis of covariance with weight as the covariate showed that a preliminary rest period resulted in significantly greater acceleration, velocity, and muscular endurance than the average results of all the warm-up conditions. A warm-up at 6 miles per hour produced significantly better results in all dependent variables than warm-up at 4 miles per hour. The length of warm-up, although not statistically significant, strongly suggested an optimal duration of 6 min. at 1 mph or 11 min. at 4 mph. The length of the rest period following warm-up had no effect on performance.

Arizona State University, Tempe, Arizona (R. E. Bullington)

12. GUINTHER, Pauline. The effects of timed and flexible calisthenics instruction on achievement in a selected physical fitness battery. Ed. D. in Secondary Education, 1966. 126 p. (R. E. Bullington)
Grade 9 girls (N = 273) in physical education classes at Arcadia High School, Scottsdale, were classified into four groups on the basis of age, height, and weight with the Neilson-Cozens classification index. Subjects within these groups were assigned randomly to either a timed, flexible, or no control calisthenics program for 4 weeks. The subjects were pre- and post-tested in sit-ups, push-ups, and standing broad jump. Comparisons were made on the basis of pre- to post-test differences. Analysis of variance showed a significantly greater mean gain in favor of the timed calisthenics group for the standing broad jump only. One classification subgroups also showed significantly greater gains for the timed calisthenics group in the standing broad jump but the flexible calisthenics group gained more than the timed calisthenic group in push-ups and the control group gained significantly more in push-ups than the other two groups. The other three classification subgroups showed no significant differences.

Arkansas State College, State College, Arkansas (J. P. Hosinski)

13. ALEXANDER, Connie Lou. The effect of mental practice and physical practice in learning the running high jump for college women. M. S. E., 1966. 63 p. (W. D. Black)

14. ARCAND, Albert. The effect of five selected isometric exercises on the performance of the vertical jump. M. S. E., 1966. 35 p. (J. P. Hosinski)

Twenty-four boys in the interscholastic basketball program at Greenville High School, Missouri, were equated into two groups on the basis of age, weight, and vertical jumping ability. One group had supplemental isometric exercises 5 days a week for 4 months and both groups were tested biweekly in the vertical jump. Mean differences were not significant at the .05 level but chi square based on gain, loss, and retention favored the experimental group at the .02 level.

15. BALL, Florence J. A comparison of four methods of developing physical fitness in junior high school girls. M.S.E., 1966. 63 p. (L. J. Dowell)
Girls in Searcy Junior High School, Searcy, Arkansas, were matched into four groups on the basis of the motor fitness test for high school girls by Evangaline and Cureton. The four methods compared were specific calisthenics, isometric exercises, rope jumping, and the regular physical education program. After 3 months the motor fitness test was repeated. All groups gained significantly at the .05 level, with the greatest improvement resulting from the calisthenic program.

16. HOWELL, Jacqueline McKeel. Survey of girls intramurals in selected Arkansas secondary schools. M.S.E., 1966. 52 p. (L. J. Dowell)

17. JARVIS, Alice. The effect of stance and initial step on movement time. M.S.E., 1966. 60 p. (L. J. Dowell)
Fifteen college women using three basic stances and two types of initial step were timed with a Dekan timer while moving 6 ft. in eight directions 45° apart. Stance and initial step had no effect on movement time.

18. MCCURLEY, Lyndle E. Selected factors involved in vertical jumping. M.S.E., 1966. 41 p. (J. P. Hosinski)

19. McHANEY, Jeannine. The development of shoulder and arm strength and its effect upon accurancy of long distance shooting in girls basketball. M.S.E., 1966. 69 p. (W. D. Black)
Forty-five college women were equated into three groups on the basis of the Knox basketball test and a test of shooting accuracy. One group participated in a shoulder strength development program; another group had a general strength development program; the third group served as a control. Both experimental groups improved their accuracy while the control group regressed slightly, but the mean differences were not significant.

20. MERCIER, August C. A study of seventh- and eighth-grade football. M.S.E., 1966. 31 p. (W. D. Black)
Senior high school boys (N = 87) who had participated in football programs while in grades 7 and 8 responded to a questionnaire. The majority had discontinued football within a year or less primarily because of injury. High schools not having grade 7 and 8 programs won as many games as those having programs.

21. TERRY, Donna W. The role of recreational activities in the lives of inmates at the Missouri State Training Center for Men. M.S.E., 1966. 62 p. (L. J. Dowell)
Inmates (N = 86) were interviewed and responded to a questionnaire. The inmates agreed that the recreational program had various therapeutic benefits. Sedentary activities were more frequently listed than active activities, although inmates indicated their greatest desires for program improvement in the latter area.

22. WIXSON, Joy Lenita. The effectiveness of two methods of warm-up on teaching the basic skills of volleyball. M.S.E., 1966. 66 p. (W. D. Black)

Ball State University, Muncie, Indiana (R. Korsgaard)

23. NICOLUSSI, Gayle F. The development of competitive track and field for women in the United States. M.A., 1966. 62 p. (R. Korsgaard)

A concise history of women's competitive track and field in the United States since 1900, including noteworthy incidents which have added to or detracted from the sport, describing the individuals and organizations playing a significant role in the sport's development, and including some prognostications about the future of competitive track and field for women.

24. SHURTZ, Barbara Ann. An evaluation of selected women's physical education activities to cardiovascular fitness. M.A., 1966. 43 p. (L. H. Getchell)

A modified 3-min. step test was administered to an active group of 93 women in various physical education classes, a trained group of 8 women in a modern dance club, and 5 women in the miler's club, and to a non-active group of 20 women not currently enrolled in the University physical education classes. Comparisons with t showed that the trained group had significantly better cardiovascular efficiency than the other two groups. Comparison with norms indicated that the trained group rated "good" and the other two groups rated "fair."

University of British Columbia, Vancouver, British Columbia (S. R. Brown)

25. BENEDICT, Graham E. Comparative effects of three experimental warm-up conditions upon accuracy. M.P.E., 1966. 63 p. (P. Mullins)

College varsity basketball players (N = 10) took part in the experiment. The conditions were five preliminary practice throws (related warm-up), astride jumping for 1 min. before throwing (unrelated warm-up), and no activity before throwing. Accuracy was measured as the number of successful free throws in 10 trials. Each subject repeated the tests three times, or nine times in all, and a balanced design was used to equalize practice effects. The hypotheses that there would be no difference between no warm-up and unrelated warm-up, and that related warm-up would be superior to unrelated warm-up and no warm-up were tested by a "planned comparisons between means" and the results supported both hypotheses.

26. GAUTSCHI, Edwin H. M. The effects of specialized training on the physical fitness of university competitive swimmers. M.P.E., 1966. 66 p. (P. Mullins)

Male members of the University of British Columbia varsity swimming team (N = 12) were given various fitness tests at the beginning, middle, and end of a 6-month competitive season. Training consisted of 4 hr. per week in the water plus a systematic dry land exercise program. The swimmers engaged in general circuit training for one month, interval circuit training for 2.5 months and a swimming training circuit for the final 2.5 months. The fitness tests consisted of dynamometrical strength items, chins-dips-vertical jump, vital capacity, vertical jump reaction time, ankle flexibility and the Harvard step test. The only mean improvements observed were in chins, dips, reaction time, and ankle flexibility items, and most of the improvement occurred in the first half of the season. All swimmers improved upon their former best times in competition.

27. JORDAN, Charles S. The CAHPER fitness-performance test as validated by the Fleishman basic fitness test. M. P. E., 1966. 91 p. (H. D. Whittle)

The 6-item Canadian Association for Health, Physical Education and Recreation fitness-performance test and the 10-item Fleishman basic fitness test were administered after preliminary practice to 90 boys in grades 6 and 7. An intercorrelation matrix of T-scores, incorporating the composite score for each of the test batteries, was prepared. The zero-order correlation between the CAHPER and Fleishman composite scores was .79. In the CAHPER test, the shuttle run, 300-yd. run, and flexed arm hang gave a multiple r of 0.96 with the composite criterion; this was increased to 0.98 when the standing broad jump was added. An indoor battery of standing broad jump, shuttle run, and flexed arm hang gave a multiple r of 0.89 with the CAHPER composite criterion; this increased to 0.94 when the one-minute speed sit-up item was added.

28. LOEWEN, Henry R. Oxygen consumption and carbon dioxide elimination during normal and hyperventilated breathing at progressive work rates. M. P. E., 1966. 58 p. (E. W. Banister)

Adult male subjects (N = 3) did step tests for 10 min. on an 18-in. bench at rates of 18, 24, 30, 36, and 40 steps/minute once while breathing normally and once while exhaling forcefully. The trials were ordered in a balanced design to equate any practice effect. The tests were done with a 6900-liter, closed circuit respirometer in connection with continuous gas analysis and recording of the expired air. The curves of O_2 consumption and CO_2 production were differentiated by computer into velocity and acceleration curves. Hyperventilation at lower work loads seemed wasteful of energy in comparison with normal breathing. But hyperventilation at higher work loads increased the O_2 consumption and CO_2 production during the early phases of exercise and was generally followed by decreased O_2 consumption during recovery. The differences between the derived curves were well-defined.

29. OLAFSON, Gordon A. The effects of an endurance exercise program on cardiovascular variables of a group of middle-aged men. M. P. E., 1966. 96 p.

Ten middle-aged males were tested before and after 17 weeks of endurance training. The tests used were Schneider, brachial pulse pressure wave (basal state), body weight, skinfolds, and progressive pulse ratios (nonbasal). The training consisted of running and muscular endurance exercises for 30 to 45 min., 2 or 3 times per week. There was no change in mean body weight although there were statistically significant mean reductions in abdominal, front thigh, and gluteal skinfold measurements. Only 5 of the 35 circulatory variables showed statistically significant mean improvements.

University of California, Berkeley, California

(H. Eckert and D. B. Van Dalen)

30. CAPLAN, Calvin S. Transfer of fatigue in motor performance. M.A. in Physical Education, 1966. 46 p. (F. M. Henry)

31. CARLISLE, Nancy Sue. Eye-hand coordination of four-year-olds

in tasks with stable and moving objects. M. A. in Physical Education, 1966. 69 p. (H. Eckert)
Four-year-old nursery school children (N = 25) were given a total of six practice sessions, twice a week over a 3-week period, in peg-shifting, disk-sorting, marble-sorting, bead-stringing, a rotary dot pursuit task, and a rotary circle tracking task. Practice effects were measured in terms of difference between the initial and final and the initial and best scores. Continued improvement did not result from specific practice in tasks with stationary objects. The best score generally occurred within the first three sessions for pegs, marbles, disks, and beads. For all tasks, except circle tracking, performance curves tended to be U-shaped indicating rather rapid improvement followed by deterioration. Circle tracking showed consistent improvement. Significant initial to best improvement occurred in all stationary object tasks and circle tracking while significant initial to final improvement occurred only in bead-stringing and circle-tracking. Low to moderate relationships were found among tasks with stable objects and among tasks with moving objects.

32. GIACOMINI, Thomas James. The "set" hypothesis of warm-up decrement in motor learning. M. A. in Physical Education, 1966. 34 p. (F. M. Henry)

33. JAMES, Richard Everette. Thermal response as affected by physical conditioning. M. A. in Physical Education, 1966. 83 p. (J. Royce)

34. MCCARN, Jerry Dean. Modification of body composition through physical training. M. A. in Physical Education, 1966. 42 p. (J. Royce)

35. MCGLYNN, George Henry. Force and fatigue in an isometrically contracted muscle. Ed. D. in Education - Physical Education, 1966. 59 p. (J. C. Parker and F. M. Henry)

36. PARKER, Joan E. The effect of knowledge of results upon learning and retention of a simple motor task. M. A. in Physical Education, 1966. 55 p. (M. L. Norrie)
Random assignment placed 180 high school girls into a control group and an experimental group. All were given 48 trials of a simple two-directional-change motor task during an initial testing period and were measured on movement and reaction times, but only the experimental group was informed of their results. Subsequently, control and experimental subjects were retested, in groups of 30, after intervals of 5 min., 1 week, and 1 month with neither group being informed of results. Both the experimental and control groups showed improvement, but subjects having a knowledge of results had significantly faster movement and reaction times. The experimental groups retained their superior performance throughout the retest trials and there was no appreciable loss or gain in performance after various lay-off intervals, except reaction time 1 month later was significantly slower. The control groups showed significant improvement in movement time after lay-offs of 1 week and 1 month.

37. STONE, Roselyn Elizabeth. The relationship between the perception and reproduction of body postures. M. A. in Physical Education, 1966. 47 p. (A. S. Espenschade)
College women (N = 107) were tested in their abilities to recognize a demonstrated body posture from an array of similar stick figures, and to reproduce the posture of a photographic projection. All subjects completed both tests with half using each technique first. All subjects also

completed a questionnaire concerning the nature and extent of their motor experience. The ability to recognize a demonstrated posture had a low but significant relationship to the ability to reproduce body postures and the individual's motor experience had a significant role in these abilities.

38. TRUSSELL, Ella M. The relation of performance of selected physical skills to perceptual aspects of reading readiness in elementary school children. Ed. D. in Education - Physical Education, 1966. 60 p. (A. S. Espenschade and J. C. Stone)
Children in grades 1 and 2 (N = 75) were given the Lincoln-Oseretsky motor development scale, a balance test (stabilometer), and a rotary pursuit task to test their motor skills. The perceptual tests were the Marianne Frostig developmental test of visual perception and the Metropolitan achievement test (reading achievement and word discrimination). Eye dominance was determined by two sighting tests and handedness by preferred hand use during the tests. Significant positive, though low, relationships were found between age, motor, visual, and reading functions which probably reflected general development. Age, the best single predictor, provided 27 percent accuracy in predicting word discrimination. Factor analysis indicated that reading skills, perceptual skills, and motor skills formed patterns of association among themselves and tended to exhibit independence with each other. Mixed eye-hand dominance was not associated with low achievement in reading, visual perception, motor development, motor learning, or motor performance.

University of California, Los Angeles, California (R. A. Snyder)

39. AHRENS, Shirley Jeanne. Spatial dimensions of movement and personality. M.S. in Physical Education, 1966. 78 p. (B. Cratty)

40. BAGG, Ewart J. K. Effect of mental and physical practice on baseball batting. M.S. in Physical Education, 1966. 50 p. (W. Massey)

41. BASSIN, Stanley Louis. The effect of competition on accuracy. M.S. in Physical Education, 1966. 43 p. (D. Handy)

42. DUTTON, Bruce Jerome. Evaluation of the endurance component of the California physical performance tests. M.S. in Physical Education, 1966. 73 p. (W. Massey)

43. FIELD, Eugene Zachary. The effect of non-recommended foods on performance. M.S. in Physical Education, 1966. 46 p. (L. Morehouse)

44. FULLERTON, Jack Hartley. Effect of weight training on improvement in swimming the butterfly stroke. M.S. in Physical Education, 1966. 102 p. (L. Morehouse)

45. GIBBS, David Wesley. Strength persistence of football players during competition. M.S. in Physical Education, 1966. 58 p. (D. Handy)

46. GLASIER, Carolyn Elizabeth. Effects of repeated trials on California physical fitness scores. M.S. in Physical Education, 1966. 35 p. (L. Morehouse)

47. HARRIS, Janet Cathryn. Effects of visual background on ball

interception. M. S. in Physical Education, 1966. 66 p. (L. Morehouse)

48. HARYUNG, Dennis. Effect of equilateral weight training of the shoulder area on javelin throwing. M. S. in Physical Education, 1966. 43 p. (W. Massey)

49. LANE, Valerie Jeanne. Aquatic movement as an art form. M. S. in Physical Education, 1966. (M. Latchaw)

50. LATIMER, Ralph Homer. Hypoxia as a training stimulus. M. S. in Physical Education, 1966. 38 p. (D. Lamb)

51. LEVIN, Eugene. Effort patterns and personality traits. M. S. in Physical Education, 1966. 52 p. (V. Hunt)

52. LITTLE, Wallis Joan. Effect of background color on response to an auditory cue. M. S. in Physical Education, 1966. 57 p. (D. Lamb)

53. MARON, Thomas Ernst. Projectile weights and accuracy. M. S. in Physical Education, 1966. 76 p. (W. Massey)

54. MEHWALD, Carlene. Analysis of the cardiovascular efficiency recovery rate of two ethnic groups. M. S. in Physical Education, 1966. 66 p. (W. Massey)

55. NEWMAN, Anne Kass. Extraversion-introversion and performance of a movement task. M. S. in Physical Education, 1966. (M. Latchaw)

56. NEYER, Phil, Jr. Isometric and isotonic exercises for elementary age boys. M. S. in Physical Education, 1966. 64 p. (W. Massey)

57. NUPP, William Ford. Adjustment of exercise intensity by heart rate. M. S. in Physical Education, 1966. 66 p. (L. Morehouse)

58. PARKER, Delbert Maurice. Effect of exercise on visual acuity. M. S. in Physical Education, 1966. 56 p. (L. Morehouse)

59. PETERSON, David George. Leg strength development and speed of line backers. M. S. in Physical Education, 1966. 49 p. (R. Snyder)

60. POLLOCK, Marion Best. The construction of an evaluation instrument to appraise behavior in the use of stimulants and depressants. Ed. D., 1966. (J. D. McNeil and E. B. Johns)

61. RAACK, James Dale. Kinesthetic after-effect and movement speed. M. S. in Physical Education, 1966. 57 p. (B. Cratty)

62. RODNEY, Glenn Wesley. Perceptual variances and bilateral adjustment in pistol shooting. M. S. in Physical Education, 1966. 87 p. (W. Massey)

63. ROLINSON, Jerilyn Ann. The development of a measure of gross motor ability. M. S. in Physical Education, 1966. 73 p. (W. Massey)

64. SHENNUM, Paul Lawrence. The effect of breathing oxygen on running performance. M.S. in Physical Education, 1966. 84 p. (L. Morehouse)

65. SULZEN, Robert Harvey. History of the double wing offense in American football. M.S. in Physical Education, 1966. (B. Miller)

66. TOMBERG, Frances Marjorie. Physical characteristics of girls of varying gymnastic ability. M.S. in Physical Education, 1966. (B. Miller)

67. WAXMAN, David. Plantar flexor strength and jumping performance. M.S. in Physical Education, 1966. 77 p. (W. Massey)

68. WEEDIN, H. Kirby, III. Equilibration of cardiovascular exercise tests. M.S. in Physical Education, 1966. 88 p. (L. Morehouse)

University of Colorado, Boulder, Colorado (A. L. Sprague)

69. BENGSTON, Gwenn M. The relationship between perceptual-motor development and motor performance of nine-year-old boys. M.S. in Physical Education, 1966. 145 p. (A. L. Sprague)
School achievement and Kephart perceptual-motor survey, Lorge-Thorndike intelligence, and six motor test scores were obtained from 55 subjects. Only perceptual-motor development and intelligence showed a significant but low relationship. Several low but significant correlations occurred between sub-items of the perceptual-motor survey and the motor performances. Sub-items of the survey and school achievement measures showed very few significant relationships. Mean performances compared favorably with previous research.

70. BREWER, Lela Anne. A comparison of the effect of two physical fitness programs on the development of muscular strength and muscular endurance of college men and women. M.S. in Physical Education, 1966. 169 p. (A. L. Sprague)

71. HOWARD, Elizabeth Ann. A predictive analysis of the AAHPER youth fitness test for junior high school girls. M.S. in Physical Education, 1966. (E. Abbott)

72. JETTE, Nadine M. The effect of four time intervals on the retention of performance for four selected soccer skills in fifth grade boys. M.S. in Physical Education, 1966. 79 p. (A. L. Sprague)

73. MAWSON, Lora M. The effect of two training methods on the duration of underwater swimming of tenth grade girls. M.S. in Physical Education, 1966. 57 p. (E. Abbott)

74. ROBERTS, Dorothy E. An investigation of shoulder retractor strength and forward inclination of the shoulders in eighth and ninth grade girls. M.S. in Physical Education, 1965. 54 p. (F. Bascom)

75. SCHADLER, Margaret M. The relationship between perceptual-motor development and motor performance of seven-year-old boys. M.S. in Physical Education, 1965. 122 p. (A. L. Sprague)
Kephart's perceptual-motor survey and five motor tests were administered to 51 subjects. Measures of intelligence and school achievement were also obtained. The correlations between perceptual-motor

development and motor performance were significant but low. Reading achievement and some motor tasks had low negative correlations. Arithmetic correlated positively with the one-hand manipulation task. Correlations of intelligence with the other variables and of perceptual-motor development with school achievement were not significant. But performance on the perceptual-motor survey discriminated significantly between adequate and inadequate school achievers.

76. SLAYDEN, Janeil. An experimental investigation of the effect of sequence of distances on the achievement in archery for female college beginners. M. S. in Physical Education, 1966. 99 p. (F. Bascom)

Half of the students in each of four university beginning archery classes were assigned randomly to shoot successively at either 30, 40, and 50 yd. or 50, 40, and 30 yd. They shot 22 ends at each distance during 4-1/2 weeks of instruction and practice. No significant difference between groups was found on the final test - the average of three consecutive Columbia rounds.

77. SNELL, Betsey A. The effect of two competitive treatments on the reaction times of eighth grade girls. M. S. in Physical Education. 1966. 64 p. (A. L. Sprague)

Subjects (N = 93) were randomly assigned to a control group and two experimental groups having either self-competition with specific knowledge of results or dual-competition (peer) with general knowledge of results. Post-treatment reaction times showed highly significant decreases within experimental groups, highly significant differences between the experimental groups and the control group, significant positive transfer to a subsequent noncompetitive test, but no significant difference between treatments. Movement time was not affected significantly by either treatment.

78. WALKER, Margot. An experimental study to evaluate the effect of special exercises on selected components of physical fitness. M. S. in Physical Education, 1966. 129 p. (F. Bascom)

Florida State University, Tallahassee, Florida (P. W. Everett)

79. BROOKER, Charles. The effect on efficiency of endurance training controlled by heart rate. Ph. D. in Physical Education, 1966. 83 p. (P. W. Everett)

Male undergraduates at Florida State University (N = 18) were tested for efficiency with submaximal work on the bicycle ergometer. Four groups were established. One group that did not exercise served as a control. The other three groups exercised 5 days a week for 6 weeks until they reached heart rates of 120, 150, or 180 beats per minute. The submaximal work test was administered again and efficiencies were determined. The control group and the group which had exercised to 120 beats per minute did not increase their efficiency either in terms of metabolic or cardiac cost. The remaining groups increased both their metabolic and cardiac efficiency. The increases were directly related to the intensity of the training.

80. BROWNING, Fred M. The effect of a selected grip strengthening exercise on bowling score. M. S. in Physical Education, 1966. 39 p. (M. F. Hall)

Two matched groups of college women, classified as beginners, bowled 16 games per person during the study. The experimental group performed a grip strengthening exercise for 8 weeks. There were no significant differences between the groups at any time, but both groups improved significantly in bowling score (6-game average) and grip strength between pre- and post-tests. The experimental group improved significantly in grip strength by the end of 5 weeks of training.

81. CHEVRETTE, John Maurice. *The effect of peer observation on selected tests of physical performance*. Ph.D. in Physical Education, 1966. 65 p. (K. D. Miller)

Grade 4 children (N = 59) were tested with hand grip strength, shuttle run, and vertical hang tests. The motivating conditions under which each subject was tested were: unobserved, in front of boys only, in front of girls only, and in front of a mixed group. Analysis of variance showed that the conditions of measurement did not affect performance of the boys or girls on the hand grip strength and the vertical hang tests but did result in significantly different performance at the .01 level in the boys' shuttle run test.

82. CLELAND, Troy. *The history of the Florida Association for Health, Physical Education, and Recreation, 1919 to 1965*. Ph.D. in Physical Education, 1966. 490 p. (K. D. Miller)

83. KLESIUS, Stephen. *A comparison of methods for estimating the reliability of selected test items of the AAHPER youth fitness test*. M.S. in Physical Education, 1966. 50 p. (M. F. Hall)

The tests were administered in accordance with the test manual instructions three times to 150 grade 10 males enrolled in physical education classes. Correlations were computed between trial, mean, median, and maximum scores. The item measurements were reliable with the possible exception of the sit-up test. Except for the shuttle run, the first trial produced a satisfactory index of performance. Lastly, the mean score of three trials when correlated with trials 1, 2, or 3 yielded coefficients as high or higher than those derived from any other measure.

84. KNIGGE, Karen R. *The effect of perceptual-motor training upon the performance on the Kephart perceptual-motor survey rating scale by two groups of second-grade readers*. M.S. in Physical Education, 1966. 79 p. (M. F. Hall)

Children in grade 2 (N = 56) were divided into slower and better readers on the basis of the California reading test, lower primary, grades 1-2. Both groups were tested on perceptual-motor ability immediately before and after an 18-hr. perceptual-motor training program administered to each group separately over an 8-week period. Pre-and post-test analysis showed significant improvement by both groups in perceptual-motor performance, but little difference between the two groups in the amount of improvement. Results also showed little relationship between perceptual-motor performance and reading grade placement scores for either group.

85. KNOWLES, Patricia. *Folkway: A suite of dances based on Aaron Copland's arrangement of old American songs*. M.A. in Dance, 1966. 107 p. (N. Smith)

86. MILLER, Thomas S. *A study of three training programs for developing hand grip strength using a knowledge of the results as a motivational technique*. Ed.D. in Physical Education, 1966. 50 p. (P. W. Everett)

Grip strength of the dominant and nondominant hand was measured in six experimental groups and a control group of 10 subjects each before and after 8 weeks training, or no training, with an isotonic, isometric, or isotonic-isometric grip developer. One experimental group using each device had knowledge of results and the other did not. Each training group made significant improvement. Analysis of covariance showed a significant difference in favor of the dominant hand but not in favor of knowledge of results. The isometric and isotonic-isometric groups differed significantly from the isotonic group.

87. PHILLIPS, Odell. An investigation of the use of the Kofranyi-Michaelis gas meter in determining expired air volumes during exercise. Ph. D. in Physical Education, 1966. 99 p. (P. W. Everett)

Expired air volumes (152) during rest, exercise, and two recovery periods were metered at their intermittent flow rates, collected in separate Douglas bags, and then remeasured at a constant flow rate of 40 liters per minute. The mean differences for correlated samples were significant at the .01 level. The Kofranyi-Michaelis gas meter did not measure air volumes as accurately at intermittent flow rates as at constant flow rates.

88. ROTHBERG, Robert A. An analysis of opinions of selected physical educators regarding curriculum concepts. Ed. D. in Physical Education, 1966. 127 p. (K. D. Miller)

Significant ideas related to the physical education curriculum were selected from the literature and developed into an opinionaire. A national sample of physical educators from universities throughout the country was surveyed. Physical education professional preparation teachers in Florida and the physical education teachers of Dade County, Florida, also responded to the opinionaire. The results indicated no significant difference of opinion between the national sample and the Florida college personnel regarding the selected curriculum concepts. There were no significant differences between the state group and the Dade County physical educators. There was a statistically significant difference between the national sample and the Dade County physical education teachers.

89. SEALS, Thomas A. An evaluation of selected driver and traffic safety education courses. Ed. D. in Physical Education, 1966. 121 p. (P. W. Everett)

Grade 9 students (N = 600) were randomly assigned to a traditional course, a 3-phase course, and two variations of a 4-phase course. Each treatment had 60 hours of instruction. Courses which provided experience on simulation equipment (4-phase) produced students who scored significantly better on a knowledge test than students enrolled in a course in which the laboratory phase consisted largely of instruction on an off-street multiple-car driving range. In road performance, students in a traditional course and students enrolled in 4-phase courses scored significantly better than students who were exposed to the 3-phase course which did not include use of simulation equipment.

University of Florida, Gainesville, Florida (C. A. Boyd)

90. DELAINO, George T. A study of the relationship between intramurals and the overall program of Florida public junior colleges. M. A. in Physical Education and Health, 1966. 86 p. (C. W. Zauner)

The purpose was to investigate the general educational objectives, the intramural objectives, and the status of men's and women's programs in 16 selected junior colleges. The primary method of data collection was a questionnaire sent to each intramural director. General conclusions were that the intramural objectives did not closely relate to the general educational objectives, the intramural program showed little

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relationship to the objectives, and the intramural programs were weak in allocation of staff time, budget, participation, and variety of activities offered.

91. ESPER, Rodney E. Effects of physical and psychological warm-up on the vertical jump. M. A. in Physical Education and Health, 1966. 55 p. (L. F. Sterling)
The purpose of this study was to determine the effect of psychological stimulation as compared to the effect of informal physical warm-up on vertical jump performance. Male track and field athletes (N = 20) were placed in two equated groups. Analysis revealed that vigorous informal warm-up of the type used in this study was significantly superior at the .01 level in improving performance in the vertical jump, and that there was a definite placebo reaction to psychological stimulation in the subjects as shown by their subjective reports. A vigorous informal warm-up was significantly better than psychological warm-up and the subjects were susceptible to psychological stimulation.

92. LEE, Sandra S. The effect of audiovisual aids on teaching a specific sports skill to the educable mentally retarded. M. A. in Physical Education and Health, 1966. 42 p. (L. F. Sterling)
Subjects were 22 educable mentally retarded boys and girls from Sunland Training Center Academic School, Gainesville, Florida. The wall volley and underhand serve were measured by a modification of the Russell-Lange version of the French-Cooper Volleyball test for junior high school students. Analysis of the data showed no significant difference in the scores on the pre-test and post-test for the experimental group receiving audiovisual aid instruction and the control practice group of boys or girls in the wall volley or serve test.

93. MAGARICK, Ronald H. The effect of strenuous isometric exercise on postprandial lipemia. M. A. in Physical Education and Health, 1966. 62 p. (C. W. Zauner)
Eleven male subjects enrolled in the College of Physical Education and Health at the University of Florida during the winter 1965 trimester served as subjects. The subjects were studied under exercise and no exercise conditions; venous blood samples were taken in the fasting state and 3-, 5-, and 7-hr. after ingestion of a high fat meal. Examination of changes in serum lactescence revealed that strenuous isometric exercise performed immediately following ingestion of a high fat meal did not significantly affect the magnitude and duration of postprandial lipemia.

94. OLDRIDGE, Neil B. Recovery from the effects of swimming training as measured by the eosinophil count. M. A. in Physical Education and Health, 1966. 42 p. (L. F. Sterling)
This study was made to determine the relationship between the changes in the eosinophil level and the stress levels of the swimming training schedule of 10 male freshmen swimmers at the University of Florida. Eosinophil counts were determined before and after a treadmill run on specific occasions throughout training. The difference between the eosinophil counts was considered to be indicative of the training stress level. The eosinophil level was inversely related at the .01 level to the stress levels resulting from the training schedule.

95. WATTERS, Ann A. Relationship of grip strength development and skill in the tennis forehand drive. M. A. in Physical Education and Health, 1965. 47 p. (C. A. Boyd)
Women (N = 29) were given grip strength and forehand drive tests at the beginning and during the 4th, 8th, and 12th weeks of instruction in a

beginning tennis class. The subjects were divided into high, medium, and low groups on the basis of initial grip strength. None of the three strength groups made major gains in grip strength during the tennis instructional unit. Furthermore, the data revealed no significant relationship between grip strength and forehand drive skill. Initial grip strength was not a determining factor in the final level of skill attained.

George Peabody College for Teachers, Nashville, Tennessee (R. Pangle)

96. HOLT, Calvin S. The effects of grades and knowledge of results on physical fitness. Ed. D. in Physical Education, 1966. 88 p. (R. Pangle)

The Indiana motor fitness test, Index I, was administered before and at 6-week intervals to 45 male students at Centre College in three classes. Subjects within the classes were assigned randomly to groups receiving no information of results, letter grades, or graphic portrayal of progress or regression. Performance improved significantly over the experimental period but analysis of variance with a Lindquist type I mixed design showed no differences among the three treatments.

97. HUMPHREY, Dorothy J. A study of the interest of philanthropic foundations in grants for health education and physical education to colleges and universities granting degrees in health education and physical education, 1953-64. 1965. 97 p. (N. L. Warren)

Information was obtained from questionnaires sent to 553 foundations selected on the basis of prior contributions to education and health, and to 617 departments of health and physical education in colleges and universities. Fifteen departments received a total of 24 grants. Four grants totaling $24, 500 were made to health education, and physical education received 20 grants totaling $1, 158, 650. The largest single grant to health education went to research, whereas the largest one to physical education was for physical facilities. These grants were awarded to institutions distributed throughout most geographical areas and regions of the United States.

98. STEIN, Julian U. Physical fitness in relation to intelligence quotient, social distance, and physique of intermediate school mentally retarded boys. Ed. D. in Physical Education, 1966. 442 p. (N. L. Warren)

Data from 187 subjects in six grade 7 and 8 physical education classes showed that mentally retarded boys performed as well as their nonretarded classmates except in the shuttle run and 600-yd. run-walk when compared on a raw score basis but were less proficient in terms of age norms, although progress was parallel in the five IQ groups. The retarded group had losses in social status that differed significantly from those of the other groups. IQ, physique, and changes in social distance showed no positive relationship with the specific components of physical fitness. The changes in physical fitness did not permit conclusions concerning the quality of the physical education program.

Illinois State University, Normal, Illinois (R. N. Singer)

99. BRACKMANN, Edward R. Physical education in the Lutheran elementary schools of central Illinois. M.S. in Physical Education, 1966. 86 p. (A. F. Gillett)

The physical education programs of 27 Lutheran elementary schools in central Illinois were studied by means of a questionnaire to determine the status and scope of the class, intramural, and interscholastic programs. Recommendations for improvement were made.

100. CONSIDINE, William J. Reflex and reaction times within and between athletes and nonathletes. M.S. in Physical Education, 1966. 38 p. (R. N. Singer)
Data from groups of athletes and nonathletes indicated that reflex time was significantly faster than reaction time and that athletes had faster relfex and reaction times than nonathletes. A low, positive, but nonsignificant correlation between reflex time and reaction time suggested task specificity.

101. MATZL, Norman R. Response comparisons of football players, tennis players, and nonathletes. M.S. in Physical Education, 1966. 36 p. (R. N. Singer)
Special apparatus was constructed to record response times for hand, leg, and combined hand and leg movements. Two analyses of variance and Duncan's new multiple range tests showed that athletes were faster than nonathletes and that tennis players were faster than football players on all three tasks.

102. NEEVES, Robert E. Effect of food consumption on 200-yard freestyle performance. M.S. in Physical Education, 1966. 69 p. (R. N. Singer)
Twelve college and varsity male swimmers swam daily 200-yd. time trials for 16 days with four trials each 1/2, 1, 2, and 4 hr. after eating a 673-gram meal. The F for a single-factor with repeated measures analysis of variance showed no significant effect for the interval between eating and swimming. A few feelings of discomfort occurred with the shortest interval but no stomach cramps were reported.

103. SEVERINO, William R. The effect of warm-up upon accuracy in football passing. M.S. in Physical Education, 1966. 42 p. (R. N. Singer)
Twenty university students were divided into four groups of five each and were tested in rotation following mental, related, unrelated, and no warm-up. The F of 2.62 for a single-factor with repeated measures analysis of variance showed no significant effect of warm-up on accuracy.

104. SIEBERT, Dorothy A. Opinions of faculty and students toward cheerleading. M.S. in Physical Education, 1966. 98 p. (E. Kelly)
An opinion questionnaire was developed and administered to a total of 577 administrators, coaches, cheerleading advisers, other faculty, cheerleaders, senior athletes, and other senior students in three high schools. Opinions were generally favorable and were significantly more favorable for the cheerleaders in comparison with the administrators, faculty, students, coaches, and athletes, and for the students and athletes in comparison with the faculty. All groups agreed that the adviser should be the best qualified teacher. The four faculty groups favored extra salary or released time for the adviser but the student groups were uncertain. Pep assemblies were considered of some value in promoting school spirit.

105. WEISS, Steven A. Weight reduction related to selected anthropometric, physical, and performance measures. M.S. in Physical Education, 1966. 95 p. (R. N. Singer)
Eighteen girth, skinfold, cardiovascular, cable tension strength, and response time measurements were obtained daily for five consecutive days on 10 college wrestlers undergoing weight reduction. A repeated measures analysis of variance showed that waist girth reduced

significantly with 1.64 percent weight loss. Abdominal and subscapular skinfolds reduced significantly with 3.07 percent weight loss. Thigh girth and the triceps, cheek, front thigh, supra-iliac, and chest skinfolds reduced significantly with 4.70 percent weight loss. Response time became significantly faster with 7.10 percent weight loss but cardiovascular endurance and strength did not change significantly. So weight loss up to 7 percent did not affect factors related to wrestling performance adversely.

University of Illinois, Urbana, Illinois (A. W. Hubbard)

106. CASSERLEY, Thomas John. The contribution of dance to the development of creative dramatics for children. M.A. in Dance, 1966. 58 p. (M. Erlanger)

107. COBLE, Nancy Jean. A statistical analysis of the Huffman inventory of emotional immaturity. M.S. in Health Education, 1966. 80 p. (W. J. Huffman)

108. COHEN, Cheryl J. A study of anthropometric and strength measures among women athletes in field hockey, gymnastics, and tennis. M.S. in Physical Education, 1966. 126 p. (L. J. Huelster)

109. CONLEY, John Arthur. Assessing the effects of experimental materials on student health knowledge. M.S. in Health Education, 1966. 58 p. (W. H. Creswell, Jr.)

110. CUNDIFF, David E. Training changes in the sympatho-adrenal system determined by cardiac cycle hemodynamics, O_2 intake, and eosinopenia. Ph.D. in Physical Education, 1966. 188 p. (T. K. Cureton)

111. CUNDIFF, Linda B. Effects of training and dietary supplements on selected cardiac intervals of young boys. M.S. in Physical Education, 1966. 59 p. (T. K. Cureton)

112. DANIEL, Juri V. Changes in selected physical fitness measures associated with rugger training, competition, and detraining. M.S. in Physical Education, 1966. 77 p. (T. K. Cureton)

113. DU TOIT, Stephanus F. Running and weight training effects upon the cardiac cycle. Ph.D. in Physical Education, 1966. 131 p. (T. K. Cureton)

114. ENGELS, Virgil Eugene. A comparison of driving ability of handicapped and ablebodied drivers. M.S. in Health Education, 1966. 59 p. (W. J. Huffman)

115. GOVERNALI, Joseph Frank. Interrelationships among three measures of driving performance. M.S. in Health Education, 1966. 61 p. (A. E. Florio)

116. GRAHAM, James H. Undergraduate professional preparation in physical education for men at the University of Illinois: 1948-1966. M.S. in Physical Education, 1966. 86 p. (H. J. VanderZwaag, E. F. Zeigler)

117. GRAUNKE, Marvin G. A comparative study of running between

man and animals. M. S. in Physical Education, 1966. 67 p. (H. E. Kenney)

118. HUMMEL, Gerard Robert. A comparison of accelerator release and brake response times of ten hand and foot braking methods on a simulator under three experimental conditions. M. S. in Health Education, 1966. 75 p. (W. J. Huffman)

119. IRWIN, Robert Philip. A study of the master's degree in health education offered by institutions other than the schools of public health. M. S. in Health Education, 1966. 110 p. (W. H. Creswell, Jr.

120. JOHNSON, Gary A. Longitudinal effects of training and wheat germ oil on total body reaction time. M. S. in Physical Education, 1966. 48 p. (T. K. Cureton)

121. KACHADORIAN, William A. An energy cost study of bowling. M. S. in Physical Education, 1966. 72 p. (T. K. Cureton)

122. KUDLA, Kenneth John. An analysis of health needs and problems as revealed by a selected sample of Operation Head Start children. M. S. in Health Education, 1966. 147 p. (O. B. Stone)

123. LANDMAN, Paul D. The status of health instruction in selected Illinois high schools. M. S. in Health Education, 1966. 102 p. (W. H. Creswell, Jr.)

124. LANGLAN, Bruce C. Effects of blood alcohol concentrations upon simulated driving skills of introverts and extroverts. M. S. in Health Education, 1966. 75 p. (W. J. Huffman)

125. LA POINT, James D. A history of the professional curriculum in Physical Education for Men at Northern Michigan University, 1922-1965. M. S. in Physical Education, 1966. 87 p. (E. F. Zeigler, A. W. Flath)

126. LARSON, Alan K. Viewpoints of the fellowship of Christian athletes: A descriptive analysis. M. S. in Physical Education, 1966. 88 p. (H. J. VanderZwaag, E. F. Zeigler)

127. LITTLE, Neil G. A longitudinal case study of selected physical fitness characteristics of a national tumbling champion. M. S. in Physical Education, 1966. 74 p. (T. K. Cureton)

128. MC GUIRE, Raymond J. A retrieval of selected intramural research and literature. M. S. in Physical Education, 1966. 241 p. (D. O. Matthews)

129. NASH, John C. An analysis of the relationship between the physical education and athletic departments in selected Canadian universities. M. S. in Physical Education, 1966. 110 p. (H. J. VanderZwaag, E. F. Zeigler)

130. O'ROURKE, Thomas W. An analysis of activities of daily living of spinal quadraplegics based on observations at the University of Illinois. M. S. in Health Education, 1966. 133 p. (W. H. Creswell, Jr.)

131. PARKER, Adah Donohue. Projections for the selection, training,

and retention of subprofessional recreation leaders based on an analysis of personality, interest, aptitude and preference data. Ph. D. in Recreation, 1966. 172 p. (A. V. Sapora)

132. PECHINSKI, Joseph M. The effects of interval running and breath-holding on cardiac intervals. M. S. in Physical Education, 1966. 97 p. (T. K. Cureton)

133. PLOWMAN, Sharon A. The effects of progressive physical training on cardiovascular intervals under conditions of heat and cold stress. M. S. in Physical Education, 1966. 108 p. (T. K. Cureton)

134. PODOLL, William, Jr. Static muscle contractions as a determinant of quadriceps strength. M. S. in Physical Education, 1966. 45 p. (H. E. Kenney)

135. RASMUSSEN, Gary G. A history of intercollegiate wrestling at the University of Illinois (1911-1964). M. S. in Physical Education, 1966. 135 p. (A. C. Moore, E. F. Zeigler)

136. SEEHAFER, Roger Wayne. The effects of specific alcohol on simulated driving ability and selected personality traits. M. S. in Health Education, 1966. 93 p. (W. J. Huffman)

137. SLOAN, Richard H. An analysis of 1965 off-season training regimens of big ten swimmers. M. S. in Physical Education, 1966. 41 p. (E. J. Wright, E. F. Zeigler)

138. SLONIGER, Edward L. The relationship of stress indicators to preejection cardiac intervals. Ph. D. in Physical Education, 1966. 214 p. (T. K. Cureton)

139. STREID, Richard B. A comparison of men's attitudes toward physical education in 1956 and 1965. M. S. in Physical Education, 1966. 49 p. (A. W. Hubbard)

140. STUDER, Virginia. The historical development of the concept of human movement fundamentals for college women in the United States. M. S. in Physical Education, 1966. 79 p. (H. J. Vander-Zwaag, E. F. Zeigler)

141. YOUNG, Jeraldine. The relationship between grip strength and gross motor performance among seven-, eight-, and nine-year-old boys and girls. M. S. in Physical Education, 1966. 71 p. (L. J. Huelster)

142. WEBSTER, Thomas George. An analysis of the health interest of college and university freshman men and women. M. S. in Health Education, 1966. 153 p. (W. H. Creswell, Jr.)

Indiana University, Bloomington, Indiana (J. M. Cooper)

143. BELL, John Anthony. A study of the relationship between recreation interest and participation and intelligence, scholastic achievement, vocational interest, and socioeconomic status of Negro students enrolled in the secondary schools of eastern Tennessee. Re. D., 1966. 212 p. (T. R. Deppe)

Subjects were 440 students selected from Negro public high schools in eastern Tennessee. Intelligence was determined with the Lorge-

Thorndike test; scholastic achievement was based on grade-point average, and the other factors were determined with a questionnaire. Students with different backgrounds, vocational interests, and intelligence evidenced different recreational interests.

144. DEZELSKY, Thomas. Role-apperceptions of school nurses in selected schools in Wisconsin. H. S. D., 1966. 129 p. (J. K. Rash)
A list of 65 important role items of nurses working in schools was used in interviews with a 25 percent proportionate random sample consisting of 14 school nurses and 36 public health nurses working in schools in Wisconsin. School health nurses and public health nurses in Wisconsin apperceive their roles differently.

145. GORMAN, Russell Dale. The selection of effective cooperating teachers in student teaching for boys' physical education programs. P. E. D., 1966. 190 p. (J. B. Daugherty)
A check list of criteria for selecting cooperating teachers was submitted to 10 experts from three state colleges and three state universities belonging to the Association for Student Teachers in the Central District of AAHPER. The methods of selection, orientation, remuneration, and inservice training of the cooperating teachers were not sufficiently different to affect the ratings. The ratings of the jurors represented the best prevailing judgment concerning the desirable characteristics of cooperating teachers.

146. GURNEY, Henry John. Acceptable concepts, grade placement, and class organization for sex education in schools. H. S. D., 1966. 138 p. (J. K. Rash)
A sex education inventory was developed from resource books and refined in a pilot study. Teaching about sex is a school responsibility, should be a continuous program starting in grade 1, and should be introduced in mixed classes (except for menstruation, masturbation, and pubertal changes). Methods of masturbation, proper hygiene associated with intercourse, techniques of intercourse, and descriptions of perversions should not be taught.

147. HARVILL, Avery Hampton. The relative effects of selected warm-up experiences on strength, agility, flexibility, and power. P. E. D., 113 p. (J. B. Daugherty)
College men (N = 90) in five volleyball classes were tested before and after 10 weeks of activity involving 4 or 8 minutes of isometric or calisthenic activity per class period. No significant difference among treatments results except for dipping strength.

148. HODAPP, Marjorie Larsen. Effects of variations in progression and use of a flotation device on teaching beginning swimming. P. E. D., 1966. 325 p. (Naomi Leyhe)
Beginning girl swimmers 8 to 11 years of age were taught with two skill progressions and with or without flotation devices ("Swim Aid" or "Swim Trainer"). Results in terms of total points for skill, total points for difficulty, and total points combined showed that flotation devices produced better results with either skill progression but the skill progressions were not significantly different.

149. HOY, Joseph Thomas. Current practices in the control of intercollegiate athletics in selected conferences. P. E. D., 1966. 194 p. (G. D. Cousins)
Athletic directors (N = 20) were surveyed in eight intercollegiate athletic conferences. They were generally not responsible for developing the

athletic philosophy, aims, objectives, or policies. Recruitment was the weakest and most controversial area. Reduced violations were the responsibility of improved conference codes and the NSAA and NAIA codes. The codes for state supported and privately endowed institutions were identical. An institutional athletic handbook was needed. Academic record with the most important consideration in awarding scholarships and need was secondary.

150. HUNTER, Milton Dial. A dictionary for physical educators. P. E. D., 1966. 340 p. (K. W. Bookwalter)
A dictionary of approximately 2500 words covering 10 subject areas was developed with the assistance of 70 experts.

151. JONES, Jack Adron. The relationship of physical fitness to academic success, academic aptitude, and athletic participation. P. E. D., 1966. 125 p. (J. B. Daugherty)
Data from 101 randomly selected male freshmen at Indiana University showed a significant correlation between physical fitness and high school athletic participation but not between physical fitness and scholastic aptitude or grade point average. The low relation between the SAT score and grade point average indicated that other factors should be combined with the SAT score as an admission requirement.

152. LEYMAN, LaRetha. Prediction of freshman grade-point averages for women physical education majors. P. E. D., 1966. 100 p. (N. L. Leyhe)
Admissions examination scores (SUAE), high school grade point averages, and Scott motor ability test scores were collected for 201 physical education for women majors at State University College, Cortland, New York. High school grade point average was the best single predictor of college grades and predicted the college grade point average within one-half letter grade. Motor ability test results were only slightly effective in predicting activity grade point average. Multiple predictors were generally no more effective than high school grades, except for high achievers.

153. MEHAFFEY, Eugene Lee. The effect of teaching selected forehand stances and grips on tennis achievement by college men. P. E. D., 1966. 91 p. (J. B. Daugherty)
College freshmen (N = 48) in beginning tennis classes were assigned to four groups using combinations of the open or closed stance and the Eastern or Continental grip in learning the forehand drive. Systematic instruction in twelve 55-min. periods produced reasonable improvement. Beginners were more effective initially with the open stance but beyond midsemester stance was not a significant factor.

154. MORRIS, Louise Delyte. Muscular action potential produced in an accuracy-oriented movement performed during auditory distraction. P. E. D., 1966. 155 p. (E. A. Davies)
Female graduate students (N = 24) were classified as to competitive status and integrated electromyograms were recorded with surface electrodes over the wrist flexors and extensors while they were performing an accuracy-oriented movement with and without auditory distraction. Residual muscular tension and changes in action potential form were related but no relationship was evident between competitor status and changes in action potential form.

155. PARKINSON, Charles Joseph. Evaluation of factors for the classification of junior high school boys in teaching and evaluating selected sport skills. P. E. D., 1965. 124 p. (J. B. Daugherty)
Boys (N = 212) in grades 7, 8, and 9 were measured in age, height,

weight, IQ, McCloy classification index I, Wetzel grid developmental level and auxodrone, physical fitness, standing broad jump, vertical jump, football, basketball, volleyball, and tumbling interest and skill, attitude toward sports, and self-rating in sport skill. Grouping according to physique enhanced prediction of success in sports. Size and maturity correlated with motor fitness, sports interest, and ability in sports. Size and maturity became progressively less related to performance as skills progressed from single to complex. Individual competition and peer group audience were strong motivators.

156. PLINKE, John Frederick. The development of basketball physical skill potential test batteries by height categories. P. E. D., 1966. 153 p. (G. F. Cousins)
Sixteen tests were selected to measure seven elements of basketball skill potential and were administered to 91 college freshmen who were under 6 ft. tall and 65 who were 6 ft. or over. The same tests were suitable for both short and tall men but three-item test batteries were made for each group to classify players or identify those with high potential skill.

157. RAZOR, Jack Edwin. A comparison of the effects of mental and physical practices as a means of increasing strength. P. E. D., 1966. 123 p. (G. F. Cousins)
Male students (N = 91) in the basic instruction program were used to determine the effectiveness of mental, physical, and combined practice as a means of increasing dominant and nondominant hand grip strength. Physical practice alone appeared the most effective for developing either dominant or nondominant hand grip strength.

158. STEELE, Ralph Horace. Characteristics of successful counselors employed at camps which emphasize desirable character development. Re. D., 1966. 122 p. (G. G. Eppley)
Initial items (N = 166) were rated by five jurors and administered to 100 people. A stratified random sample of 20 camps, plus 7 alternates, were selected from 50 camps. Eleven of the items met all criteria and formed the final scale which had a reliability of .33 and a validity of .42 relative to the Chigachgook scale. The final scale needed further refinement as an implement for predicting counselor success.

159. ZASO, Gus Charles. The central life interests and utilization of leisure of professional recreation personnel. Re. D., 1966. 225 p. (T. R. Deppe)
Municipal, metropolitan, and county recreation personnel in 118 units having populations over 25,000 in 37 states were surveyed. Their active participation in leisure pursuits tended to be home and family related. Administrators and supervisors were more involved in professional and service organizations than center directors and recreation leaders.

University of Iowa, Iowa City, Iowa (M. G. Scott and L. E. Smith)

160. ANDERSON, Marilyn Lee. Measurement of changes in attitudes of high school girls toward physical conditioning following an intensified physical fitness program. M.A. in Physical Education, 1966. 65 p. (M. G. Fox)
A valid 40-item attitude scale was constructed from 81 items including 31 from an unpublished scale by Blummer. The attitude scale was given before and after a 6-week basketball unit to 8 sections of girls in grade 9. The experimental group had 10 min. of daily exercises from Adult Fitness (President's Council on Physical Fitness). The control group showed a

favorable change toward physical conditioning and the experimental group showed a less favorable change but the difference in mean change was not significant.

161. BORCHARDT, John W. A cluster analysis of static strength tests. Ph. D. in Physical Education, 1966. 164 p. (L. E. Alley)
Age, height, weight, and 24 cable tensiometer strength measures were obtained on 81 men, ages 18 to 22 years, in service classes at the University of Oregon. Test-retest reliabilities on 31 subjects were sufficiently high. Of the 276 correlations between strength tests, 215 were significant at the .01 level. The zero-order correlations were not significantly different from partial correlations with age, height, and weight held constant. Weight correlated .399 with total strength. Cluster analysis of the strength intercorrelations showed specific groupings for the arm-forearm, trunk, neck, hand, and thigh-leg strength measures.

162. BOWERS, Irene Waters. The effectiveness of instruction and the use of music as an aid in teaching rope jumping skills to first grade children. M.A. in Physical Education, 1966. 73 p. (M. G. Scott)
Groups were equated on the basis of a 10-item test involving variations of rope jumping using both long and individual ropes. The learning unit lasted 4 weeks with two lessons per week. Instruction vs. noninstruction was tested with 136 children and music vs. nonmusic with 131. The children seemed to learn as well from practice and self-motivation as from instruction. Music was significantly more effective than self-direction in increasing the rope jumping ability of boys but had little effect for girls. The final comparison showed essentially no difference between sexes.

163. CARLSON, Nelson Thomas. The relationship between physical fitness attainment and academic achievement. M.A. in Physical Education, 1966. 56 p. (D. R. Casady)
Physical fitness attainment was the difference in composite centile scores from the Iowa physical fitness test taken before and after enrollment in a physical conditioning class. Academic achievement was the grade point average during that semester. The correlations between physical fitness attainment and academic achievement for a group equated physically (.13) and a group equated physically and mentally (.22) were significant at the .05 level. The physical fitness attainment scores of the academically high individuals in both groups (16.10 and 16.71) were significantly higher (.05) than those of the academically low individuals (12.41 and 12.54). The mean grade point average of the individuals high in physical fitness attainment (2.31) was significantly higher (.05) than that for the low individuals in the group equated physically, but not for the group equated physically and mentally.

164. CHAMBERS, Ted A. The effect of wearing ankle weights upon running agility of junior high boys. M.A. in Physical Education, 1966. 27 p. (G. M. Asprey)
An experimental group of 15 boys wore ankle weights during an 8-week basketball unit involving calisthenics, running, fundamentals, and offensive and defensive patterns while a control group (N = 15) practiced without ankle weights. Mean differences between initial and final scores for the experimental group on four agility tests were significant at the .001 level and the control group had 3 significant within group mean differences. The only significant difference between mean gains for the two groups was for the auto-tire test in which the control group had not gained significantly. The practice increased agility but ankle weights made little apparent difference.

165. CLEMENT, Annie. An investigation of factors related to ability and achievement in synchronized swimming. Ph. D. in Physical Education, 1966. 80 p. (M. G. Scott)

Freshman and sophomore women (N = 41) at the University of Iowa who were strong swimmers without previous experience in synchronized swimming served as subjects. Each subject was given eight tests of kinesthesis, a buoyancy test, and 12 anthropometric measurements. Proficiency in synchronized swimming after eight lessons was evaluated on five selected stunts by four judges using a 7-point scale. The tests of kinesthesis and body build tended to have low and nonsignificant correlations with proficiency in synchronized swimming.

166. COCKERILL, Phyllis Brooks. A survey of the recreational needs of the College Hill Methodist Church, Wichita, Kansas. M. A. in Physical Education, 1966. 219 p. (M. J. Barnes)

An extensive historical review was prepared concerning attitudes toward recreational activities in the churches of America. The church membership from primary school children to senior citizens was surveyed concerning interests, time preferences, grouping, reasons for not participating in current programs, and suggestions. The responses indicated a need for a varied program at all ages, especially for youth and children, and reorganization of the college-age program. Interest was sufficient to warrant constructing additional facilities.

167. DUDLEY, Hazel. A comparison of two methods of motivation on the learning of motor skills. M. A. in Physical Education, 1966. 63 p. (M. G. Fox)

The Scott motor ability test battery consisting of basketball throw, wall pass, broad jump, and dash was given to junior high school girls in September and December. Within group comparisons, using t, showed significant gains at the .02 level both where the teacher set the level for achievement and where the individuals established their level of aspiration. But the group where the teacher set the level of achievement made significantly greater gains.

168. FOSS, Jean L. A history of professional preparation in physical education for women in the teachers colleges of Wisconsin, Illinois, and Iowa. Ph. D. in Physical Education, 1966. 226 p. (M. G. Scott)

The study was limited to institutions which historically had been engaged exclusively in teacher education and did not include colleges of education within state universities. Visitations were made to the eight institutions which offered a major in physical education for women before 1962. The material was arranged chronologically. Both the undergraduate and graduate programs were studied. The teaching personnel, administration of the department, curricular offerings, student activities, professional costume, degrees conferred, graduates, and major requirements were examined as elements of the professional program. Trends in the development of professional preparation for women in physical education were indicated as recognized.

169. HAAS, Mary Ann. The relationship of kinesthetic acuity to bowling performance for beginners. Ph. D. in Physical Education, 1966. 48 p. (M. G. Scott)

The measurements of kinesthetic acuity for 93 college women were determined through tests involving static balance, dynamic balance, arm-positioning, pronation-supination of the hand, and spatial judgment. The experimental phase of the study consisted of teaching a kinesthetic-centered instructional unit in bowling as against no emphasis in kinesthesis for the control group. The results justified the conclusions that the kinesthesis tests were valid, that the relationship between bowling performance and kinesthesis was nonsignificant, and that after the experimental treatment the mean difference between group bowling averages was nonsignificant.

170. HOLYOAK, Owen J. Programs of physical education for boys in selected Iowa public high schools. Ph D. in Physical Education, 1966. 267 p. (L. E. Alley)
Data concerning professional preparation, experience, programs, and instructional methods were obtained by interviews and observations in 62 high schools randomly selected from schools stratified by enrollment and location. Various aspects of the programs had improved in the past eight years but lack of immediate and long-range planning was evident. The teachers generally had completed their professional preparation in Iowa colleges and universities but failed to teach their physical education classes effectively.

171. IMEL, Elizabeth Carmen. Construction of a Programed Learning Unit: Introduction to specific mechanical principles and their relationship to selected physical skills. Ph. D. in Physical Education, 1966. 119 p. (M. G. Fox)
Programed learning materials covering equilibrium, levers, motion, and Newton's laws were prepared with the mean time for completion ranging from 12.5 to 16.8 min. Most students completed 3 to 5 frames/minute. Students at Illinois State University and Western Illinois University tested immediately before and after the unit on levers showed a significant gain at the .05 level with a t of 2.77. Student evaluation of the material indicated that the majority considered it valuable, clear, concise, repetitious, and enjoyable as a study aid.

172. JOHNSON, Nancy Diers. A creative thesis: A dance concert. M. A. in Physical Education, 1966. 98 p. (M. G. Fox)
A suite of dances with four distinct themes was choreographed with movements appropriate to each motif which reinforced the themes. Performers were selected, trained, and costumed. Lighting and staging were arranged. Questionnaire returns concerning the themes, appropriateness of movements, skill of the dances, rhythmic aspects of the dances, costumes, lighting, and the personal reaction of the observers were favorable.

173. LYON, Mary E. The effect of preceding and succeeding motor tasks on reaction time. Ph. D. in Physical Education, 1966. 67 p. (M. G. Scott)
The reaction measured was a movement of the wrist away from a switch attached to the subject's waist in response to a buzzer. The movement was a short-strided run of 14 steps. College women (N = 90) volunteered to serve as subjects. Reaction time preceding the movement was significantly slower than reaction time during the movement and reaction time during the movement was significantly slower and more variable than simple reaction time. The reaction times of the reaction time-movement time combination tests were significantly slower and more variable than simple reaction time. The correlations between simple reaction time and reaction time preceding a movement and between reaction time preceding a movement and reaction time during a movement were nonsignificant. A significant delay occurred in movement time when the reaction was required preceding the movement and when it was required during the movement.

174. MARTIN, Alphadine. Relative effects of selected exercise programs on dysmenorrhea. Ph. D. in Physical Education, 1966.

83 p. (M. G. Scott)
A comparison was made of three groups performing isometric exercise for 6 sec. daily, the same exercise three times daily, and four isotonic exercises daily. All exercises were for abdominal muscles. The subjects were volunteers, screened by student health service, and matched for severity of discomfort. The exercises were done for four months. Strength of abdominals was measured at the beginning and end of the interval. The study was completed by 64 subjects - 26, 22, and 19 in the respective groups. All groups achieved relief, the least effective exercise program being the one isometric contraction per day, and the greatest relief coming from the isotonic exercises. Significant improvement in dynamometer strength was shown by the group doing four isotonic exercises and the group doing three isometric contractions. At the beginning of the study the mild group had a significantly higher abdominal strength than the severe group.

175. MARTIN, Andrew M. Four television programs based on physiological aspects of growth and fitness. M. A. in Physical Education, 1966. 124 p. (L. E. Alley, J. R. Winnie)
Four 30-min. television scripts on "Growing Up and Growing Older," "Patterns of Movements," "Exercise and Your Heart," and "Tension and Relaxation" were prepared from material recommended by various faculty members and illustrated with research apparatus from various laboratories.

176. MILLER, Kathleen E. Measures of leg strength in various positions. M. A. in Physical Education, 1966. 71 p. (N. P. Burke)
The subjects were 47 college women. Both the long jump and vertical jump were significantly better when arm action was used. Leg lift strength was measured with a belt and with the knee angle 120°. Strength was significantly higher when the dynamometer base was placed on its side with the dial up and the bar under the knees than when the subject stood on the platform. Jumping without arm action did not yield significantly higher correlations with leg lift strength. Lean body mass and anthropometric measurements did not yield sufficiently high correlations to predict leg lift strength.

177. MISTA, Nancy J. Attitudes of college women toward their high school physical education programs. Ph. D. in Physical Education, 1966. 116 p. (M. G. Scott)
The revised Plummer attitude inventory and a questionnaire concerning educational, personal, and sociological factors were administered to 1, 126 freshman women in 4-year colleges in Iowa. Significant differences in attitudes toward physical education existed between those earning and not earning interscholastic letters, those living and not living on farms, those having been graduated in classes of less than 75 and more than 140, those choosing and not choosing a teaching career, and those rating themselves above and below average in skill.

178. MUNSON, B. Corlee. An evaluation of posture screening techniques for children. Ph. D. in Physical Education, 1966. 95 p. (M. G. Fox)
Sagittal plane posture photographs of 300 primary age children were evaluated by five physical education and five classroom teachers using a modified check list, a modified New York posture test, and an experimental 13-line celluloid grid. The experimental grid was as effective with inexperienced judges as with experienced judges and more valid and reliable than the other two methods. The experienced judges were more effective with the other two tests than the inexperienced judges, and the inexperienced judges were more effective with the New York test and the

check list. Critical changes occurred in the chest, abdominal, and hip regions between grades 1 and 3 which were important to well-balanced anterior-posterior posture. The frequency of anterior-posterior postural deviations indicated a crucial need for re-emphasis on posture education.

179. NADEAU, Andre J. The construction and evaluation of objective tests for football and basketball officials. Ph. D. in Physical Education, 1966. 156 p. (L. E. Alley)
Score sheets for the 1963 national federation tests completed by 271 football officials in 17 states and 231 basketball officials in 15 states were selected arbitrarily by executive secretaries of the state high school athletic associations and forwarded for analysis. The football test was relevant but the basketball test failed to meet suitable standards. Both tests were too easy and their discriminative power was questionable although the reliabilities were .89 and .90. The experimentally constructed football and basketball tests were highly relevant, discriminated moderately to highly, and assured some discrimination at all levels although the item difficulties did not conform to the suggested pattern and the football test was overly difficult. Constructing sound written tests covering knowledge of the rules and officiating mechanics was possible but difficult.

180. OLSON, David M. Motor skill and behavior adjustment: An exploratory study. Ph. D. in Physical Education, 1966. 267 p. (L. E. Alley)
The subjects, 42 boys and 43 girls who were low in motor skill and deficient in behavior adjustment were selected from 783 children in grades 1, 2, and 3 and assigned randomly to an experimental instruction group, an experimental noninstruction group, or a deviant control group. A normal control group was randomly selected from those not deficient in behavior adjustment and above average in motor skill. Agility-run, jump-and-reach, kicking, and pass-and-catch tests were administered along with a sociometry test and a behavior adjustment rating scale. The behaviorially deficient and poorly skilled children with a supplementary physical education program improved more than those without and reached a level of motor performance not significantly different from the normal group without the program but their gains in behavior adjustment were not significant. The deficient and poorly skilled children with instruction did not demonstrate greater improvement than those without instruction although instruction seemed to favor retention.

181. POPP, M. Joan. The development of a teaching aid for the evaluation of posture. Ph. D. in Physical Education, 1966. 120 p. (M. G. Fox)
Transparencies with an accompanying teaching manual were developed for use with an overhead projector as an audiovisual aid in teaching posture evaluation. The project was designed for high school or college students in beginning classes in body mechanics or posture education. It was developed to assist the inexperienced teacher in presenting material and to provide a varying approach for the experienced teacher. Overhead projection employing overlays was chosen to provide a step-by-step approach. The project was assisted by the Audio-Visual Department, University of Iowa.

182. ROBERTS, Jane Ann. The effect of a particular practice technique on the golf swing. Ph. D. in Physical Education, 1966. 85 p. (M. G. Fox)
The Scott general motor ability test was used to divide 83 beginning women golf students into two equated groups. The control group (N = 43)

used regulation balls throughout the 19 class periods. The experimental group (N = 40) used larger white sponge rubber balls (5.5 cm) during the first six lessons. The Roberts golf skill tests were administered during the 10th, 15th, and 19th class periods. Using the larger ball appeared slightly advantageous for both irons and woods on the initial test but the groups were not significantly different on the final test. Students with higher and average general motor ability made significantly greater gains than those with lower than average motor ability.

183. SPRAGUE, Robert B. Evaluation of a photographic method for measuring leg adduction and abduction and the effects of selected exercise programs on these measures. Ph.D. in Physical Education, 1966. 131 p. (G. M. Asprey)
Leg adduction and abduction measures taken photographically had test-retest reliabilities of .91 and .92 for measures taken on the same day and .88 when measures were taken on different days. Radiographic measures of leg adduction and abduction were also taken along with cable tensiometer strength tests of leg extension and flexion. Male college volunteers (N = 109) were tested before and after football, deep-squat weight training, modified-squat weight training, physical conditioning, or light exercise programs for 6 weeks. Only the football group increased the amount of leg adduction and abduction that occurred as a result of a displacing force although the method for measuring abduction and adduction proved suitable for experimental use.

184. SURBURG, Paul R. Audio, visual, and audiovisual instructions and mental practice in developing the forehand drive in tennis. M.A. in Physical Education, 1966. 48 p. (L. E. Smith)
The subjects, 183 male junior college students, were divided into six experimental groups and a control group who were tested before and after an 8-week period with the Broer-Miller tennis test. Three groups received audio, visual, or audiovisual instruction three times a week and then practiced the forehand drive mentally. The other three experimental groups had the same instruction but did not practice mentally. The mental practice groups all made significant gains and were superior to the other experimental groups. Audio-mental practice was superior to the other methods.

185. WALKUP, Mary J. The predictability of success in bowling and badminton. Ph.D. in Physical Education, 1966. 70 p. (M. G. Scott)
General motor ability tests were given to 129 undergraduate women before and after either 9 weeks of bowling or 18 weeks of badminton. Rank in the bowling class correlated significantly with academic achievement (ACT) but rank in the badminton class did not. Rank in the badminton class correlated significantly with general motor ability. The best predictor of both badminton and bowling performance was the basketball throw. The means of the general motor ability tests increased during the intervals.

University of Kansas, Lawrence, Kansas (W. H. Osness)

186. CAMPBELL, Larry L. A history of football at the University of Kansas, 1889-1920. M.S. in Education, 1966. 90 p. (H. A. Shenk)

187. LAVERTY, Wayne O. A history of track and field athletics at Shawnee Mission North High School. M.S. in Education, 1966. 123 p. (H. A. Shenk)

188. LEAKE, Sandra A. Camping for handicapped children: Integration with normal children in a normal camp setting. M.S. in Education, 1966. 96 p. (H. A. Shenk)

189. MARTINSON, Patricia L. A camping handbook for use of the counselor-in-training program at Camp Cedarledge. M.S. in Education, 1966. 66 p. (E. R. Elbel)

190. SPARKE, Doris J. Growth patterns of high school girls. M.S. in Education, 1966. 18 p. (H. A. Shenk)

191. TIGER, Tinnie Lowella. A suggested intramural program for women at Haskell Institute. M.S. in Education, 1966. 38 p. (H. A. Shenk)

192. WHEATON, Garrett Eugene. A study of the reactions of coaches, athletes, and spectators to situations occurring in football and basketball contests. M.S. in Education, 1966. 41 p. (H. A. Shenk)

193. WINGATE, Lyle Allen. The development of a general physical ability test for junior high school boys. M.S. in Education, 1966. 42 p. (H. A. Shenk)

Kent State University, Kent, Ohio (L. A. Golding)

194. DELFORGE, Gary D. An analysis of selected factors related to the occurrence of athletic injuries with implications for prevention. M.A. in Health and Physical Education, 1966. 253 p. (R. Bos)

Injuries occurring in varsity and freshman football, basketball, baseball, and track and field at Western Michigan University during 1962-63 and at the University of Arizona during 1964-65 were analyzed in terms of: incidence per sport, location, type, cause, specific activity, time, severity, and the physical characteristics and grade level of the injured. Incidence of injury was proportional to the amount of bodily contact. The extent and manner of using particular anatomical structures during competition appeared to be a more significant factor in the probability of injury than their apparent susceptability because of structure. Certain types of injuries were common to all sports but the nature of the game often determined the type of injury. The incidence of intercollegiate football injuries was more dependent on the number of participants and their extent of participation than on age, height, or weight.

195. FIGLEY, Grace. The effect of selected physical activities on limb density, volume, weight, and composition. M.A. in Health and Physical Education, 1966. 160 p. (L. A. Golding)

Twenty females that could be matched into four groups were chosen from volunteers ranging in age from 25 to 45 years. Body weight, leg weight in air, thigh and calf girth, thigh skinfolds, leg volume, density, and strength were measured before and after a 12-week activity program involving bicycle ergometer riding, walking and running on a treadmill, vigorous leg calisthenics, or stepping up and down on a variable height bench. Some significant changes occurred within groups but an analysis of variance for equated groups showed no significant difference among the treatments.

196. GIRDANO, Daniel A. The physiological effects of cooling upon recovery from fatigue. M.A. in Health and Physical Education, 1966. 176 p. (L. A. Golding)

Previous studies indicated that a cool environment before work delayed the onset of fatigue and hastened recovery after work. Subjects (N = 19) were tested four times on different days. The test consisted of an all-out treadmill run in extreme heat, a 12-min. recovery period, and a second all-out run. The subjects performed completely or partially clothed on two tests and with a hot or cool recovery period on two tests in a balanced rotation. Recovering in a cool environment had no significant effect on the second all-out run, nor on the heart rate, blood pressure, respiration rate, or rectal temperature, although 17 subjects reported that they felt more refreshed and recovered more in the cool environment.

197. MASTROINE, Mario J. The physiological adaptation to daily work in a hot environment. M.A. in Health and Physical Education, 1966. 135 p. (L. A. Golding)
Experimental subjects (N = 13) rode a bicycle ergometer eight times for 10 min. at about 6,000 ft.-lb./min. in a 105 F. and 75 percent relative humidity environment. Other subjects (N = 13) performed under ambient environmental conditions. Nude weights were taken before the rides and after showering and drying thoroughly. Resting heart rates, blood pressures, respiration rates, and rectal temperatures were taken before and immediately after the rides and at 1- and 5-min. recovery on the initial and final days. Acclimatization was apparent in a significant decrease in systolic blood pressure immediately after exercise and at 1- and 5-min. recovery and in the decrease in the 1- and 5-min. recovery heart rates although the immediately postexercise heart rate showed no significant change. The experimental subjects also reported that they felt less stress as the work progressed.

198. PARKER, Margaret J. A comparison between two methods of recovery on subsequent work performance. M.A. in Health and Physical Education, 1966. 234 p. (L. A. Golding)
The study involved 20 college women in various degrees of condition who had a 2.5-min. submaximal run on a treadmill, a 12-min. recovery period, and then ran to exhaustion on the treadmill. Half the group recovered supine with the feet elevated and the other half walked for 8 min., reclined for 2 min. while measurements were taken, and then walked for 2 min. before the run to exhaustion. The method of recovery had no significant effect on the all-out run times nor on the return of heart rate, respiration rate, or systolic blood pressure to pre-exercise levels.

Louisiana State University, Baton Rouge, Louisiana (J. K. Nelson)

199. BERGERON, Philip C. The effects of static strength training at various positions and dynamic strength training through a full range of motion on strength, speed of movement, and power. Ed.D. in Physical Education, 1966. 129 p. (J. K. Nelson)
At the beginning and end of the 10-week training program, the subjects were tested for static strength in the supine press at two positions, speed of movement of the arm extensors, and power as measured by throws for distance using a basketball and a medicine ball. The 96 male subjects were randomly assigned to three experimental groups that trained either isotonically with the supine press through a full range of motion, isometrically at the extended position in the supine press, or isometrically at the flexed, or starting, position in the supine press, and a control group. All three experimental groups showed significant gains in static strength at both positions of measurement, in speed of movement, and in the two tests of power. The control group did not make any significant gains. No difference was found among the three experimental groups.

200. CLARK, Jean W. The relationship of initial pulse rate, recovery pulse rate, recovery index and subjective appraisal of physical condition after various durations of work. M. S. in Physical Education, 1966. 87 p. (F. A. Drury)

College men and women (N = 76) stepped for 30 sec. on an 18-in. bench the first week and increased the work duration in 30-sec. increments weekly for 5 weeks. Initial and recovery pulse rates were recorded each time and the Harvard step test was administered before and after the program. Male and female subjects showed the same pattern of relationship on all variables within each work duration. Pulse recovery rate increased as the duration of work increased but the increase diminished markedly after 2 min. of exercise. Subjective evaluations of condition were an unreliable index of individual heart rate adjustments.

201. CROWDER, Vernon R. A comparison of the effects of two methods of strength training on reaction time. M. S. in Physical Education, 1966. 43 p. (J. K. Nelson)

Reaction times were measured with the Dekan automatic performance timer in three groups of college men who had isometric, isotonic, or no exercises in addition to their regular physical education activities twice a week for 5 weeks. Both supplemental exercise groups improved significantly in reaction time and both became significantly superior to the control group but not different from each other. Specific isometric or isotonic exercise improved reaction time.

202. HAMILTON, Xandra L. The effects of isometric and isotonic endurance exercises on the development of cardiovascular efficiency of eighth grade girls classified according to initial cardiovascular efficiency and weight. Ed. D. in Physical Education, 1966. 84 p. (J. K. Nelson)

The modified Harvard step test was used to separate 120 grade 8 girls into 5 equal groups of 24 ranging from the lowest 24 to the highest and the Pryor width-height chart was used to classify them as under-, average, or overweight. Half of each group had isotonic and half had isometric exercises 3 days a week for 6 weeks. Readministering the step test showed that isometric exercise benefited all groups but isotonic exercises were better than isometric for subjects with low initial cardiovascular fitness. Girls of average weight improved more than under- or overweight girls in both programs.

203. KENNISON, James E. The effects of four training programs on the acquisition of speed and accuracy in motor performance. Ed. D. in Physical Education, 1966. 82 p. (J. K. Nelson)

Accuracy in the one-hand push shot in basketball and speed and accuracy in passing at a target were tested in 100 male college students before and after a 5-week training program. One group practiced with a regulation basketball; another group practiced with the regulation ball and had supplemental isometric exercises; the third group used a ball with twice the weight; and the fourth group used the weighted ball plus isometric exercises. Shooting accuracy improved significantly for the two groups using the regulation ball but not for the two groups using the weighted ball. The difference was due to the ball rather than the isometric exercises or interaction. No significant gains were made in passing accuracy. Passing velocity increased for the group using the regulation ball plus isometric exercises and for the group using the weighted ball.

204. KIRBY, Ronald F. The effects of various exercise programs involving different amounts of exercise on the development of certain components of physical fitness. Ed. D. in Physical Education,

1966. 100 p. (J. K. Nelson)
The Harvard step test and JCR test were administered to 140 college men before and after a 6-week training program meeting three times a week. The five exercise programs consisted of class activity plus one isometric exercise, the same plus running in place, the same plus vertical jumping, the same plus push-ups, and entirely exercising. All groups except that entirely exercising improved significantly on the Harvard step test with no differences between groups. The JCR composite score showed a significant, negative linear regression with the number of exercises. The major factor in conditioning was the intensity of exercise even in one exercise for a few seconds rather than the time spent, number of repetitions, and/or number of exercises in the program.

205. MILTON, George C. The effects of three programs of long distance running on an isometric exercise program on the development of cardiovascular efficiency. Ed. D. in Physical Education, 1966. 82 p. (J. K. Nelson)
College males (N = 463) trained 4 days a week for 7 weeks with either running 10-, 20-, or 30-min. each session or with isometric exercises and no running. All four groups made significant gains on the Harvard step test. The three running groups improved more than the isometric group but with no differences among the three groups. The four training programs showed no differences for the subjects with the lowest initial cardiovascular efficiency but 10 and 20 min. of running was superior for subjects with the highest initial fitness. Although running was superior to isometric exercise, the amount of running showed no relation to cardiovascular improvement.

206. SCHEUERMANN, Francis V. A study of the overall gains in muscular strength made by high school boys who participated in an isometric exercise program for six weeks. M.S. in Physical Education, 1966. 37 p. (F. A. Drury)
Two groups of grade 11 boys had 6 weeks of isometric training 12 weeks prior to the experiment. They were tested for leg, back, and arm-shoulder strength with an iron barbell in a power rack and the weight that could be moved approximately one inch was divided by body weight for strength quotient scores. Then half the subjects had a softball unit and the other half had the unit plus isometric exercises. Both groups improved their three strength quotients but the exercise plus softball group made significantly greater gains.

207. SPENCE, Dale W. Analysis of selected values in physical education as identified by professional personnel. Ed. D. in Physical Education, 1966. 285 p. (J. W. Kistler)
Opinions concerning underlying values were obtained from 198 college-university and public elementary-secondary physical educators in the United States by means of an unstructured inquiry. The responses were treated with documentary analysis for qualitative and quantitative comparisons. Despite general qualitative agreement, the public school group emphasized self-mastery and the more tangible values but the college-university group tended to emphasize self-realization. The greatest quantitative agreement between the groups occurred in identifying self-identify, -testing, -respect, -discipline, and -expression along with personality, moral, aesthetic, and intellectual values.

University of Maryland, College Park, Maryland (G.A. Stull)

208. AMBO, Dennis M. Individual differences in various structural and strength measures of the hand and forearm and their relation to accuracy of performance. M.A. in Physical Education, 1966.

58 p. (D. H. Clarke)
University male student volunteers (N = 70) with no previous basketball experience were tested for triceps strength of the preferred arm. Hand length and width and forearm length were measured. The subjects took 50 trials with sufficient rest between tossing a soccer ball over a bar 6 in. above the head at a target on the floor 12 ft. away. Accuracy was measured as distance from the target center. Reliability coefficients ranged from .660 to .999. The intercorrelations between variables were low and insignificant, ranging from -.065 to .102, so the specificity ranged from 99.0 to 99.9 percent. Average performance curves showed rapid improvement during the first 7 trials and learning was essentially completed in 35 trials.

209. BEHUNIAK, Gregory J. The effect of overload vertical jump training upon the performance of thirty vertical jumps. M.A. in Physical Education, 1966. 53 p. (D. L. Hanson)
The subjects performed 30 vertical jumps at 5 second intervals on Monday, Wednesday, and Friday. The mean of these 90 jumps was used as the subject's score to form three equated groups that trained with 0, 15, and 30 percent of their body weight added during their 30 daily trials at 5-sec. intervals. They were retested with 90 trials, as above, after training. Improvement within groups was tested with t for paired scores and analysis of variance was used to test for significant differences among treatments. Training with 0 and 15 percent overload produced significant improvement in 30 consecutive maximal vertical jumps.

210. BIRD, Anne Marie. A comparative study of certain personality characteristics of college women participating in basketball and modern dance. M.A. in Physical Education, 1965. 49 p. (W. R. Johnson)
The California psychological inventory was administered during the spring semester of 1963 to 14 college women who voluntarily chose basketball and 13 who chose modern dance. The basketball group scored significantly higher at the .05 level on the communality scale and the dance group scored significantly higher on the flexibility and femininity scales.

211. BRUSH, Florence Clapham. Patterns of movement and associated electrical muscle activity in college women of high and of low motor ability. Ph.D. in Physical Education, 1966. 187 p. (M. H. Eyler)
The highest and lowest eight women between 17 and 19 years of age were selected from 273 freshmen women who were given the 3-item Scott motor ability test. Knee joint movement, electromyograms from the rectus femoris and biceps femoris, and the horizontal component of force applied to the ball were recorded during 25 trials in learning to kick a soccer ball with a specified force while sitting in a stable position. The two groups showed similar patterns of movement, rate of learning, and muscle action except that the low motor ability group showed greater intensity and duration in the second contraction of the biceps femoris and that the high motor ability group had recorded force positively correlated with excursion and angular velocity forward and negatively correlated with the duration of unopposed action of the rectus femoris. Some patterns of movement showed similar, orderly changes in both groups during learning but some changes in the patterns of movement and muscle activity differed between groups.

212. CODISPOTI, James C. Effects of mental and physical practice with and without a basketball on accuracy as measured by basketball foul shooting. M.A. in Physical Education, 1965. 35 p. (B. F. Husman)

The subjects were 20 male students from the required physical education program. The test consisted of three trials of 20 free throws each having a test-retest reliability of .85. All subjects were tested after 2-week periods of mental practice with a basketball and without a basketball and of no practice. Mental practice with and without a basketball produced better results but the difference between the three conditions were not statistically significant at the .05 level.

213. ESTES, Eugene E. The effects of two interval training programs on running ability as measured by time in the half-mile. M.A. in Physical Education, 1966. 78 p. (J. H. Humphrey)
Members of two high school track teams (N = 45) had three 880-yd. time trials as a pretest and single 880-yd. time trials biweekly during the 8-week experimental period during which one team practiced with increased repetition and the other with increased pace interval training. Both groups improved significantly at the .01 level but the mean gains were not significantly different.

214. GERNAND, Jay Erb. An attitude study of human groups toward the required physical education in secondary schools of a selected Maryland county. M.A. in Physical Education, 1966. 73 p. (B. F. Husman)
The Wear attitude inventory, short form with 40 items, was administered to 435 secondary school boys and samples of 50 each who were Caucasian, Jewish, and Negro were drawn by random sampling. Analysis of variance showed a significant difference at the .01 level among the groups on the total inventory score and on the general, physical, and social outcomes portions but not the emotional outcome portion. Duncan's new multiple range test showed subsequently that the mean differences among the groups differed significantly at the .05 level.

215. JANUS, Robert J. A study of motor performance in relation to persistence of effort of hyperactive brain-damaged children. M.A. in Physical Education, 1966. 80 p. (W. R. Johnson)
Subjects were drawn from special education classes in five grade schools in the same county. The subjects were shown a simple walking pattern on an automated motor training machine. Persistence of effort was measured as the length of time it took the subject to become satiated with the task and also as the numbers of trials he initiated on the machine. The subjects ranged in chronological age from 5 years and 10 months to 13 years and 11 months and in mental age from 3 years and 0 months to 12 years and 11 months. The partial correlations between lower mental age and greater time or trials to satiation were .33 and .35 with chronological age held constant. Thus, lower mental age was associated with increased persistence of effort in hyperactive brain-damaged children.

216. KUTT, Judith M. The relationship between 17-ketosteroid excretion and muscular strength in women. M.A. in Physical Education, 1965. 95 p. (D. L. Hanson)
College women (N = 22) collected 24-hr. urine samples one day a week for 3 weeks and right and left grip, knee extension, and elbow flexion strengths were measured the following morning with a Smedley dynamometer. The mean of 3 trials was used as the score. 17-ketosteroid concentration was determined with the Zimmerman reaction. Daily excretion of 17-ketosteroids was not significantly correlated with any of the strength measures for individual testing sessions but mean 17-ketosteroid excretion correlated .51 with mean left grip and .46 with mean right grip. The other mean correlations were not significant at the .05 level.

217. LEAHY, Robert F. A study of the relationship between certain objective measures of body image and a measure of motor performance on the stabilometer. M.A. in Physical Education, 1966. 88 p. (D. H. Steel)

The body-cathexis test and body rating scale were administered twice, a week apart, to 79 college men in two introductory physical education classes. A body image score was obtained by averaging T-scores of the separate tests. The subjects then had 14 30-sec. trials on the Stabilometer with 30-sec. rest periods between trials. The score per trial was the number of 4° tilts. The performance curve showed learning during the first seven trials so the sum of the last seven trials was used as the motor performance score. The test reliabilities were high but the correlation between body image and motor performance was not significant.

218. MARTIN, Freda E. A method of evaluating skill performance in duckpin bowling for tenth grade senior high school girls. M.A. in Physical Education, 1965. 65 p. (E. E. Harvey)

Duckpin bowling scores of 228 grade 10 girls who completed a 17-game series were used. Students were divided into ability groups on the basis of their averages for the first five games. Final bowling averages and improvement were used for grading. Learning curves based on actual and cumulative group averages were plotted. Differences in the learning patterns of the groups were apparent, especially for the curves based on actual group averages. Analysis of spares and strikes and of the high and low games by days of the week provided no useful information. The classification and grading plans appeared feasible.

219. McDONALD, Andrew F. Relationship between physical performance scores and body rating scale of body image in seventh grade boys. M.A. in Physical Education, 1966. 47 p. (W. R. Johnson)

A body rating scale and the Sargent jump, squat thrusts, sit-ups, and pull-ups were administered to 52 grade 7 boys randomly selected from 251 students at Dundalk Junior High School in Baltimore County. Absence and scheduling difficulties reduced the final test group to 46. The reliability coefficient for the performance test was .89 and for the body rating scale .97.

220. METCALF, James A. The effect of diminished amounts of forced exercise upon the maintenance of volitional exercise in adult male albino rats. M.A. in Physical Education, 1966. 23 p. (D. L. Hanson)

Fifty adult male albino rats of the Wistar strain were divided into five equated groups on the basis of voluntary activity levels. Four groups had a 28-day training period of enforced exercise consisting of a daily half-hour swim with a 2 percent overload. The daily voluntary activity of each rat was recorded for the next 28 days. Subsequently, one group had no forced exercise and the other three had forced exercise every 3rd, 6th, or 9th day. Analysis of variance showed no significant difference in the mean voluntary activity of the groups.

221. MORRIS, Alfred F. The effects of caloric intake on body weight and composition of sedentary and exercised rats when the relative proportions of fat and carbohydrate in the diet are varied. M.A. in Physical Education, 1966. 50 p. (D. L. Hanson)

Adult male albino, Sprague-Dawley rats (N = 120) were randomly divided into eight equal groups after 35 days of confined, sedentary living to develop obesity. Using a 2x2x2 factorial design, four groups had daily exercise with a 2 percent overload and four groups remained sedentary; four groups had a high-fat and four had a low-fat diet, and four groups had food *ad libitum* while four received 60 percent of their *ad libitum* intake. All animals were sacrificed after 39 days and their live weights and body compositions were determined. Both exercise and restricted caloric intake decreased body weight and the percentage of fat significantly and increased ash, protein, and water components significantly. These effects were additive. A high-fat diet decreased the percentage of body water and protein significantly and increased the percentage of body fat significantly without significantly altering body weight.

222. ROBSON, Frank L. *A comparison of two methods of training to improve the pull-up ability of fourth grade boys.* M. A. in Physical Education, 1966. 107 p. (J. H. Humphrey)
Grade 4 boys (N = 36) were divided equally into three groups that were tested biweekly over a 3-month period with pull-up ability measured in terms of the total centimeters of upward travel that was continuous throughout the range of movement. One group completed 10 pull-ups with assistance three times a week; another group completed 10 trips across the horizontal ladder with a "skin the cat" at the end of each trip three times a week; and the third group had no supplemental practice. Variance was analyzed into within and among groups mean squares and also using the subject as his own control. Both training methods were significantly better than no practice, other than the tests, at the .05 level, but the difference between them was not significant. The group practicing with assisted pull-ups improved more rapidly than the horizontal ladder group by showing significant within group differences 2 to 4 weeks sooner.

223. ROSENBLEETH, Ronald J. *A comparison of part and whole-part-whole methods of learning with massed and distributed practice time.* M. A. in Physical Education, 1966. 55 p. (D. H. Steel)
The subjects were four groups of 20 each from the required program who could not make four consecutive catches juggling three balls. The criterion was 50 consecutive catches but all subjects stopped after 210 min. of practice. Two groups used the part method and two groups used the whole-part-whole method. One group for each method practiced 3 days per week for 10 min. and the other group practiced for 30 min. on one day per week. The whole-part-whole and distributed practice combination had the shortest mean to reach the criterion (119 min.) and lowest number of failures (2). The part and massed practice combination had the longest mean time (143 min.) and most failures (5). The differences among groups were not significant at the .05 level but 68 subjects met the criterion.

224. RUHLING, Robert O. *A comparative study of introversion-extroversion in selected varsity and intramural athletes using the composite MMPI introversion-extroversion scale.* M. A. in Physical Education, 1966. 46 p. (B. F. Husman)
The composite MMPI introversion-extroversion scale was administered to 9 intramural and 10 varsity tennis players, 8 intramural and 15 varsity wrestlers, and 13 intramural and 14 varsity basketball players. Retesting part of the group a month later gave a reliability of .90 but retesting 42 with the Guilford introversion-extroversion test gave a significant but low validity of .41. An *F* of .48 showed that differences among groups were not significant.

225. SUDBRINK, Donald L. *Legal liabilities of physical education teachers of the public schools in the state of Maryland.* M. A. in Physical Education, 1965. 58 p. (M. H. Eyler)
Review of cases which employed legal assistance indicated that the courts

consistently held school districts immune to tort liability as governmental agencies. Since public school teachers were liable for tort judgements (and the size of awards had become enormous) it was concluded that teachers need to be informed concerning legal responsibility and that investing in liability insurance was desirable.

226. WILSON, Richard A. The effects of planned exercise on heart rate and blood pressure of aged females. M. A. in Physical Education, 1965. 73 p. (D. L. Hanson)
Twelve residents aged 66 to 84 in a home for the aging volunteered as subjects for a 4-week training program consisting of an increasingly rapid 1-mile walk and climbing one to three flights of stairs. The subjects were tested before, midway, and at the end of the program by taking ECG's heart rates, and blood pressures before and at 1, 3, and 5 min. after ascending and descending three 6-in. steps 10 times as rapidly as possible. SBP increased immediately after exercise in all but one case, recovered to the pre-exercise level in 5 min. for most cases and tended to decrease with training. DBP showed a slight decrease immediately after exercise in five cases and one case showed a consistent increase. Four subjects showed a consistent increase in hear rate immediately after exercise. Heart rates were generally slightly lower after the training.

University of Massachusetts, Amherst, Massachusetts (H. K. Campney)

227. BALIN, Stuart. The effect of formal, informal, and lack of warm-up on the basketball free throw. M. S. in Physical Education, 1964. 45 p. (E. V. Hubbard)

228. BALDWIN, Kenneth M. Oxygen debt and efficiency relationships following treadmill running. M. S. in Physical Education, 1965. 31 p. (B. Ricci)

229. BIGGLESTONE, Gail A. A comparison of the snowplow approach and parallel approach in teaching skiing to beginners. M. S. in Physical Education, 1966. 41 p. (C. L. Vendien)

230. BLOCH, Edith S. The effects of tobacco-sensitivity on the cardiovascular efficiency of women based on the modified Harvard test. M. S. in Physical Education, 1965. 36 p. (B. Ricci)

231. CANDEL, Michael S. A study of the effects of the extra-man penalty in the game of lacrosse. M. S. in Physical Education, 1965. 43 p. (B. Ricci)

232. DOYLE, Joseph B. The effect of peripheral vision on offensive football success. M. S. in Physical Education, 1966. 47 p. (E. V. Hubbard)

233. ELDRED, Vincent. A comparison of two teaching techniques of the forehand stroke in tennis. M. S. in Physical Education, 1964. 32 p. (B. Ricci)

234. FODERO, Joseph M. A comparison of hand spacings used in two hands snatching. M. S. in Physical Education, 1966. 40 p. (D. C. Bischoff)

235. FURBLUR, Ernest E. Flexibility as a measure of success in gymnastics. M. S. in Physical Education, 1964. 34 p. (E. V. Hubbard)

236. GARSYS, Algimantas V. A comparison of the effects of isotonic and isometric heel-raise exercise on vertical jumping ability as measured by the Sargent jump. M.S. in Physical Education, 1966. 41 p. (E. V. Hubbard)

237. HAKES, Richard R. A comparison of the effects of three time limit variables applied to a general conditioning program involving circuit training. M.S. in Physical Education, 1965. 40 p. (D. C. Bischoff)

238. HESS, Irvin T. A survey of wrestling conditioning and incidence of injury. M.S. in Physical Education, 1966. 58 p. (D. C. Bischoff)

239. HUGHLEY, Carey. Five minutes of stool-stepping as a conditioner for distance running. M.S. in Physical Education, 1966. 27 p. (E. V. Hubbard)

240. KENT, James W. The effects of training of the lower extremities upon cardiovascular efficiency based on the Harvard step test. M.S. in Physical Education, 1966. 30 p. (B. Ricci)

241. KNAPP, Joann. Emotional reactions of college women gymnasts as a function of time to competition. M.S. in Physical Education, 1966. 63 p. (E. V. Hubbard)

242. KRASINSKI, Shirley J. A study of the relationship between training on a hand-eye coordination task and improvement in tennis. M.S. in Physical Education, 1964. 51 p. (E. V. Hubbard)

243. MACK, Arthur E. The relationship of selected traits to basketball success. M.S. in Physical Education, 1964. 47 p. (E. V. Hubbard)

244. MAJESKI, Paul A. A comparative study of trunk and shoulder flexibility in football players and non-athletes. M.S. in Physical Education, 1964. 37 p. (E. V. Hubbard)

245. MOTT, Lloyd. A prediction of vertical jumping ability from selected physical variables. M.S. in Physical Education, 1966. 51 p. (H. K. Campney)

246. MOWATT, Marilyn. Relationship of selected physiological variables to the menstrual cycle during rest and recovery from mild exercise. M.S. in Physical Education, 1966. 45 p. (B. Ricci)

247. PORTER, Sharon Sue. A comparison of two methods of teaching archery. M.S. in Physical Education, 1966. 46 p. (E. V. Hubbard)

248. RITCEY, Robert L. The effects of trampoline training on explosive power as measured by the modified Sargent jump. M.S. in Physical Education, 1965. 27 p. (E. V. Hubbard)

249. RITCHIE, Gwendolyn H. A comparison of the problem-solving and explanation-demonstration method of teaching basketball. M.S. in Physical Education, 1966. 121 p. (J. S. Tillotson)

250. ROBERTS, Glyn C. Optimum knee joint angle for maximum strength gain utilizing isometric contractions. M.S. in Physical Education, 1966. 65 p. (H. K. Campney)

251. SCHROEDER, John R. A comparison of reaction times of football players to two types of audible starting signals. M.S. in Physical Education, 1966. 61 p. (B. Ricci)

252. SHIERMAN, Gail. The interrelationships of specific gravity, center of gravity, vital capacity, and percent of body fat. M.S. in Physical Education, 1965. 22 p. (B. Ricci)

253. SULLIVAN, Edward. Emotional reactions and grip strength in college wrestlers as a function of time to competition. M.S. in Physical Education, 1964. 49 p. (B. Ricci)

254. TELLIER, Robert D. A comparison of the effects of six-second and twelve-second isometric training in developing strength in head and neck muscles. M.S. in Physical Education, 1965. 51 p. (E. V. Hubbard)

255. WILKS, Stacy A. The effect of training on reaction time and movement time in the fencing lunge. M.S. in Physical Education, 1965. 75 p. (D. C. Bischoff)

256. WOODS, Ronald B. A cinematographic analysis of the differences between good servers in tennis and poor servers. M.S. in Physical Education, 1965. 55 p. (E. V. Hubbard)

Michigan State University, East Lansing, Michigan (H. W. Olson)

257. BARTSCH, Richard L. An attempt to develop a method of conditioning albino rats to run. M.A. in Physical Education, 1966. 38 p. (W. W. Heusner)

The separate and combined effects of varying amounts of light, water deprivation, low-voltage pulsating shocks, and high-voltage continuous shocks as stimuli for prescribed amounts of interval and other types of running. Light and combined stimuli were ineffectual. Back-and-forth movement patterns were undesirable. Low-voltage pulsating shocks were more desirable than high-voltage continuous shocks.

258. BEAMER, David W. The relationship of resistance and current to various voltages applied to chronic electrode implants around the tibial nerves of adult male albino rats. M.A. in Physical Education, 1966. 34 p. (W. W. Heusner)

Silastic-insulated multifilament surgical steel wire electrodes were permanently implanted around the tibial branch of the sciatic nerve of 35 adult male albino rats. Twelve died or were unfit for data collection. The remaining 23 showing clean plantar flexion on stimulation were tested with voltages ranging from .2 to 150. Amperage was measured and resistance was calculated. Observed current and resistance curves were fitted with polynomial regression equations. The practical range was from 1 to 100 volts, and 35 volts produced the best maximal contractions.

259. BOS, David L. Physical ability testing of male students in grades four through twelve. M.A. in Physical Education, 1966. 52 p. (W. D. VanHuss)

Percentile norm tables for selected measures of strength, power, agility, flexibility, body composition, and cardiovascular and muscular endurance were prepared from data collected in five schools of the Unity Christian School System at Hudsonville.

260. FAULKNER, Marie J. An atlas of postural patterns of college women. M.A. in Physical Education, 1966. 35 p. (J. A. Wessel)
The anterior-posterior body alignment of 120 college women was assessed by the Massey technique. The range, mean, median, and standard deviation was computed for each postural measurement. Goodness of fit was tested with chi square and percentile tables were prepared. Representative photographs from each quartile provided visual standards.

261. FULLER, David A. A pilot study: Development of a profile record for appraising motor development of the handicapped child in elementary school. M.A. in Physical Education, 1965. 86 p. (J. A. Wessel)
Skill test and basic motor pattern norms by sex for children in grades 1 to 4 were obtained from the literature. Motor pattern scales indicating significant stages in normal child development seemed more suitable for appraising progress of the severely handicapped child. A profile based on multiple rating scales was developed to provide detailed and individualized evaluation of the motor ability of handicapped children but the practical applicability of the profile was not determined.

262. GRAHAM, Peter J., Jr. A survey of liability insurance for physical educators within the United States. M.A. in Physical Education, 1965. 39 p. (G. E. Mikles)
Data were obtained from questionnaires sent to state departments of education and state athletic associations in every state. Most physical educators must purchase their own liability insurance, and they have insufficient coverage. Few states have a "save harmless" clause or anticipate adding one to the education laws. Most state agencies keep no or inadequate records of suits, verdicts, and awards. The average award in recorded cases was $187,800 but most judgments were in favor of the physical educator and the frequency of suits has been decreasing.

263. HARRIS, Robert Louis. The effects of selected isotonic and isometric exercises for developing strength for the iron cross. M.A. in Physical Education, 1965. 45 p. (W. W. Heusner)
Freshmen in the required program (N = 78) were divided into six groups that were equated on body weight and assigned randomly to exercise programs. The groups exercised once daily 5 days per week for 6 weeks and were tested for arm strength each Friday. The exercise programs had 2-min. rest periods between bouts and involved either three maximal 6-sec. exertions on an isometric strength testing machine, three bouts of six attempts each in lowering to and holding the iron cross position on lowered still rings and jumping to a support position, three bouts of 10 repetitions with an inner tube attached to the rings and under the feet, two bouts of the same exercise, three bouts with the arms through the straps and maximal exertion required to hold the iron cross for 6 sec., and two bouts of the same exercise. The mean arm strength of all groups improved but no gain was significant. The isotonic exercise groups tended to show consistent, progressive improvement and the isometric exercise groups showed little or no improvement until the second or third week, but tended to get stronger on the final test.

264. HARTMAN, Franklin Lee. A comparison of five maximal oxygen intake tests. M.A. in Physical Education, 1965. 30 p. (W. W. Heusner)
Nine subjects were tested on five maximal oxygen intake tests. A treadmill test (Taylor test 2) at 7 mph with the grade increased in 2.5 percent increments gave the highest mean values for maximal oxygen intake, oxygen intake per kilogram of body weight, and heart rate. A bicycle ergometer test at 60 rpm, with the load increased in increments of 300 kg-m/min. gave the lowest mean values.

265. KERTZER, Robert. The effects of prolonged training on the resistance to radiation-induced changes in male albino rats. Ph.D. in Physical Education, 1965. 11 p. (W. D. VanHuss)
Male albino rats 26 days old (N = 250) were assigned randomly to five groups which differed in the amount of activity before and after irradiation with 650 r while confined in a 3" x 9" lucite chamber on about the 90th day. Blood samples were drawn from the orbital sinus 5 days before and 9 days after irradiation for WBC and eosinophil counts. Mortality and survival time were recorded in hours up to 30 days when all surviving animals were sacrificed. Body, spleen, and adrenal weights were measured after death or sacrificing. The sedentary control group was confined in individual cages before and after irradiation. The spontaneous control had individual exercise cages before irradiation and were confined afterward. The sedentary forced activity group were confined in sedentary cages before and after irradiation but were forced to swim one-half hour daily before irradiation. The spontaneous-forced group were in spontaneous exercise cages and had half-hour daily swims before irradiation and were confined in sedentary cages afterward. The spontaneous group were in spontaneous exercise cages before and after training. Forced swimming significantly increased spontaneous activity and prolonged activity reduced body weight. Twenty-four-hour illumination and irradiation significantly decreased spontaneous activity. Prolonged training had no effect on WBC or eosinophil counts before or after irradiation, relative adrenal, or splenic weight, or postirradiation mortality or survival time. Heavier animals in all groups had significantly increased survival times.

266. LAMB, David R. The role of hepatic glucose-6-phosphatase in adaptation to exercise and electrical stress in adult male albino rats. Ph.D. in Physical Education, 1965. 41 p. (W. D. VanHuss)
Adult male rats (N = 90) were assigned randomly to five regimens. Sedentary animals lived in 10" x 8" x 7" cages. Those with voluntary activity had cages with exercise drums. Enforced activity consisted of a half-hour daily swim. Electrical stress consisted of 60-v and 15 ma shocks every 15 sec. for .5 hr. daily. The animals were sacrificed after 70 days. The livers were excised, weighted, and frozen at -20 C. for 5 months before enzyme assay in terms of inorganize phosphate release per 100 grams of body weight during 15 minutes incubation in a .08 molar substrate solution at 37 C. and a pH of 6.5. The mean enzyme activities and standard errors relative to the regimens were: sedentary housing with no added stress 68.2 ± 3.4, voluntary activity with no added stress 59.9 ± 3.5, sedentary housing with electrical stress 74.5 ± 3.8, voluntary activity with electrical stress 66.1 ± 2.8, and voluntary housing, forced activity, and electrical stress 69.9 ± 3.7. A one-way fixed-effects analysis of variance showed no significant difference among groups so hepatic glucose-6-phosphatase had no apparent role in adaptation on enforced activity or electrical stress.

267. LEBEAU, Deann. Physical activity recall record for adult women: Validation of the method. M.A. in Physical Education, 1965. 40 p. (J. A. Wessel)
Interview questionnaire returns were obtained from 38 adult women, ages 20 to 60, and used as a basis for determining annual energy costs for occupation, leisure, homemaking, and total from tabled values. Two judges ranked independently and subjectively the randomly selected half samples on these items twice. The rankings for each judge showed high consistency, with correlations ranging from .935 to 1.00 for the various parts. But between-judge rank correlations went as low as .27, and mean judges ratings correlated with the objective score went as low as .37, with the energy cost for homemaking being hardest to assess. The objectively-scored physical activity recall record appeared invalid.

268. MAKSUD, Michael G. The effects of electrical stress and physical activity on blood cholesterol levels, whole blood coagulation time, and several organ weights of adult male rats. Ph. D. in Physical Education, 1965. 112 p. (W. D. VanHuss)
Male albino rats (N = 90) were divided into five equated groups on the basis of serum cholesterol and blood coagulation time. Electrical stress was a half-second, 60-v 15-ma shock at 15-sec. intervals for a half-hour daily. Sedentary housing was in a 10" x 8" x 7" cage. Activity stress was a daily half-hour swim with 2 percent of body weight added. Voluntary activity housing had attached exercise drums. The 70-day experimental regimens involved either sedentary housing and no electrical, or both stresses, and activity housing with no or electrical stress. Food and water were ad libitum. Stressed animals ate and weighed significantly less (.01) and had significantly larger relative adrenal, heart, and testes weights but not kidney, liver, and spleen weights. Analysis of variance showed no significant initial or final among-group differences in serum cholesterol, coagulation time, or voluntary activity.

269. MIZUGUCHI, Norman K. A comparison of Meredith's height-weight chart, Sheldon's trunk index, Parnell's phenotype and the ponderal index. M. A. in Education, 1966. 48 p. (W. D. VanHuss)
Anthropometric measurements were obtained directly and photographically from 98 boys, age 12-14, in grades 7 and 8. The data were compared in tables and graphs. The Meredith height-weight chart, a self-rating system, was highly comparable to the Parnell system. Ponderal index was useful in classifying body types and assisted materially in rating phenotype by the Parnell system. Sheldon's revised and unpublished trunk index showed relatively high indexes for ectomorphs rather than endomorphs as had been assumed. The sample was slightly skewed toward endo-mesmorphy.

270. PHILLIPS, Coralie. A survey of the physical activity backgrounds and present participation in and attitudes toward sports and recreational activities of resident graduate women students at Michigan State University. M. A. in Physical Education, 1966. 63 p. (H. Webb)
An interview questionnaire concerning previous sports participation and attitudes was administered to 84 graduate women students. Frequency and percentage tables were prepared for each item. Activity preferences were ranked and reasons for and against participating were tabulated. Selected variables were tested with chi square but none was significant at the .10 level. The results indicated similar participation and attitude patterns despite widely varying family and school backgrounds.

271. PHILLIPS, Judith A. The assessment of freshmen female attitudes toward physical education as the result of 105 Foundations Course at Michigan State University. M. A. in Physical Education, 1966. 69 p. (J. A. Wessel)
An 83-item "long form" questionnaire concerning attitudes toward the four general objectives of the course and containing a 25-item "short form" was administered to 49 freshman women on the first and last days of class. The reliability of the long form was .768. Twenty of the short form and 60 of the long form items met the requirements for concurrent validity (r = .5 or above). Initial attitudes were significantly higher than neutral at the .01 level for 5 short-form and 22 long-form items. Five of the short form and 22 of the long-form items also showed a positive shift during the course, using chi square at the .10 level. Three general attitudinal areas showed significant positive shifts during the course; the exception was for the bio-physiological objective.

272. RICE, Karla S. A comparison of the effectiveness of two methods of exercise in a physical education instructional program. M. A. in Physical Education, 1965. 54 p. (J. A. Wessel)
Five tests of strength, flexibility, and total body endurance were given before and after a 6-week conditioning program. College women (N = 53) worked on maximum repetitions for one minute on strength exercises and had 3 minutes for total body endurance. College women (N = 36) worked on maximum repetitions for the three prescribed exercises within 6 min. The intense work for one minute program seemed more tolerable and required more intense effort. Subjects tended to pace themselves during the 6-min. program. No significant improvement resulted except for the intense group on push-ups. A longer program might have produced significant changes.

273. ROTH, Clayton. A curriculum guide and theoretical program for senior high physical education. M. A. in Physical Education, 1965. 57 p. (W. D. VanHuss)
The guide started with the knowledge and abilities students should have on entering senior high school and presented the framework of the curriculum, philosophy, objectives, and developmental activities for a scientifically-based program.

274. RYNDA, Eleanor Cecilia. The effectiveness of two internal training programs on the improvement of speed in running the 220-yard dash in young women. M. A. in Physical Education, 1965. 42 p. (J. A. Wessel)
Thirteen healthy college women ages 19-22 were divided into a group that had no special training program, a group training solely with 60-yd. sprints, and a group training on alternate days with 60-yd. sprints and 300-yd. runs four days per week. All subjects were tested before and after the 5-week program in the 220-yd. dash in leg strength, and for energy metabolism and heart rate in an all-out and a standardized 10-min. treadmill run. The trained groups showed greater improvement than the untrained group and improved significantly in all-out run time. The sprint training group improved their maximum ventilation significantly and made a greater gain in leg strength although this and the other gains were not significant.

275. SIMONE, Anthony C., Jr. The effects of flashmeter training on the ability to detect the direction of spin of a pitched baseball. M. A. in Physical Education, 1966. 27 p. (W. D. VanHuss)
Undergraduate physical education majors were divided into three groups on their ability to distinguish between fast and curved balls, five each thrown in random order by four varsity pitchers. Their responses were classified right, wrong, or missed. Flashmeter training consisted of identifying digits flashed on a screen. The eye exercises involved closing the eyes and simulating writing one's name with eye movements. Isometric exercise consisted of pressing a bat against an immovable object for 6 sec. in each of three positions. The groups had 14 training sessions in 5 weeks. None of the training programs resulted in significant improvement in judging between fast and curved balls.

276. STRETCH, Clyde J. The relationship between ankle-taping and knee injuries in high school football. M. A. in Physical Education, 1966. 36 p. (W. D. VanHuss)
Coaches at 95 Michigan high schools were interviewed and coaches at 421 of the remaining 437 high schools in the state athletic association returned questionnaires. Schools with 375 to 899 students and those in urban-industrial areas had the highest incidence of knee injuries. Schools with less than 175 students and those in urban-agricultural

areas had the lowest incidence. The incidence was highest for backfield positions, followed by ends and internal linemen. Analysis by chi square showed no relationship between the incidence of knee injuries and the use of adhesive or cloth ankle wrappings. No relationship was found between incidence of knee injuries and the playing of football under game or practice conditions.

277. TEMPLE, Thomas D. Development of a low resistance facepiece for collection of expired gases. M. A. in Physical Education, 1966. 36 p. (W. D. VanHuss)
A triangular, half-mask with internal air space was developed to fit an average, sculptured face by preparing inner and outer molds of Ultra Cal to form two semicavity molds. Dow-Corning RTV Silastic was poured into the two molds and then the two halves were laminated together. The mask had three inhalation J-valves on one side and 3 exhalation J-valves on the other side. Intramask pressures at varying air flow rates were used to determine inhalation and exhalation resistances.

278. THORNTON, Donald. The effects of isotonic and isometric strength training on pull-up achievement. M. A. in Physical Education, 1965. 25 p. (W. D. VanHuss)
Sixteen boys in grade 6 exercised five times a week for 6 weeks on either an isometric training apparatus or a horizontal bar (isotonic). Each group was divided initially into four subgroups on the basis of chinning ability. They were retested midway and at the end of training. Both highest subgroups made significant gains but the difference between the methods was not significant.

279. WEBER, Jerome Charles. The effects of differing prepuberty exercise programs on selected measures of growth in the male albino rat. Ph. D. in Physical Education, 1966. 71 p. (W. D. VanHuss)
Three groups of male, prepubertal rats were assigned to regimens involving restricted activity, voluntary activity in an exercise wheel, or voluntary activity plus a 30-min. daily swim with a 2 percent overload for 35 days. They were sacrificed at puberty. Analysis of variance and the Scheffé test showed that prepubertal exercise was a significant variable affecting total body weight, relative testes, kidney, and adrenal weight, length of the tibia, and serum cholesterol level at puberty but not relative heart, liver, or spleen weight.

University of Michigan, Ann Arbor, Michigan

(J. A. Faulkner and E. French)

280. COTTON, Charlie. Comparison of the ice hockey wrist, sweep, and slap shots for speed. M. A. in Education (Physical Education), 1966. 43 p. (H. J. Montoye)

281. CUNNINGHAM, David Arthur. The effect of training on the aerobic and anaerobic capacities. Ph. D. in Education (Physical Education), 1966. 63 p. (J. A. Faulkner)

282. DAUGERT, Patricia Jean. The relationships of anxiety and the need for achievement to the learning of swimming. Ph. D. in Education (Physical Education), 1966. 151 p. (S. A. Howard)

283. MAGEL, John Richard. Maximum oxygen uptakes of college swimmers. Ph. D. in Education (Physical Education), 1966. 118 p. (J. A. Faulkner)

284. O'NEIL, Shirley May. The relationship between knowledge of performance and level of performance. Ph. D. in Education (Physical Education), 1966. 170 p. (K. L. Ley)

285. ROBB, Margaret. Feedback and skill learning. Ph. D. in Education (Physical Education), 1966. 71 p. (K. L. Ley)

286. WANGERIN, Ronald Richard. A comparative study of seven doctoral programs in three midwestern universities. Ph. D. in Education (Physical Education), 1966. 88 p. (P. A. Hunsicker)

University of Minnesota, Minneapolis, Minnesota (M. U. Wilson)

287. BADERTSCHER, Kenneth R. Basic personality types and senior citizen programming. M. A. in Recreation, 1966. 133 p. (R. J. Donnelly)

288. HINSON, Marilyn M. An electromyographic study of push-ups for women. Ph. D. in Education (Concentration in Physical Education), 1966. 119 p. (M. U. Wilson)
Electromyograms were recorded with surface electrodes from the triceps brachii, deltoid, pectoralis major, trapezius, serratus anterior, rectus abdominis, and external oblique. Records were taken from 10 of 156 women who could do 10 or more full push-ups while doing full, bench, parallel bar, and knee push-ups and 10 who could do no more than 5 knee push-ups while doing knee push-ups, the wall push-away, and the letdown from a front leaning rest position. The anterior deltoid, triceps brachii, upper trapezius, and clavicular portion of the pectoralis major were most involved. A similar pattern of muscle action was evident in types of push-ups and the unskilled subjects showed greater muscle activity in doing knee push-ups than the skilled. The bench and parallel bar push-ups required similar muscle activity. Let-downs involved more activity than the lowering phase of knee push-ups and the wall push-away elicited minimal muscular effort.

289. PLACK, Jeralyn J. The relationship of achievement in reading to achievement in selected motor skills in children in grades one, three, and five. M. A. in Physical Education, 1965. 79 p. (M. U. Wilson)
Approximately 60 children each in grades 1, 3, and 5 (N = 172) were given the Johnson motor achievement battery and their reading achievement was measured with the Iowa tests of basic skills. Highly significant correlations resulted between reading achievement and the throw-and-catch and zigzag run tests but the throw-and-catch and jump-and-reach tests showed little or no relationship with reading ability. The motor tests showed a similar pattern of significance and nonsignificance when analysis of variance and Scheffé's method was used after dividing the subjects into three reading levels.

290. STONER, Lela June. Cardiovascular efficiency of Minnesota women aged 45-60 engaged in a moderate exercise program. Ph. D. in Education (Concentration in Physical Education), 1966. 189 p. (M. U. Wilson)
Women were rated high, medium, or low in cardiovascular efficiency on the basis of a 2-min. step test on a 12-in. bench at 24 steps per minute. The subjects within groups were assigned randomly to 15 min. of walking daily for four weeks or to no alteration of their habitual exercise pattern. Resting heart rate, area under the pulsewave, and blood pressures were recorded with a Heartometer and the Brouha

index and Skubic index were computed from the step test data. Ten subjects in the high and medium efficiency groups were given a modified Balke-Ware test of oxygen consumption. Two-minute step tests and pulse wave tracings were taken in nine experimental subjects after 2 weeks of walking and detraining measures were taken 2 weeks after training ended. The experimental subjects showed significant improvement at the .05 level both midway and at the end of training in the Brouha index and at the .01 level in the Skubic index which also dropped significantly (.05) during detraining. The experimental group improved in walking although oxygen consumption and treadmill walking time did not change significantly.

291. VOKATY, Merle H. Developing a checklist of health problems for the junior high schools of Minneapolis. M. A. in Physical Education, 1966. 71 p. (H. M. Slocum)

University of Montana, Missoula, Montana (B. J. Sharkey)

292. HOLLEMAN, John P. The effect of specified training intensities on cardiorespiratory adaptation. M. S. in Physical Education, 1966. 39 p. (B. J. Sharkey)

293. JACKSON, Jay H. The effect of various training frequencies on cardiorespiratory endurance. M. S. in Physical Education, 1966. 71 p. (B. J. Sharkey)

Twenty men were pretested for maximal oxygen intake, given the Balke treadmill test, and had their aerobic capacity predicted with the Astrand-Ryhming equation. The predicted aerobic capacity correlated significantly with the other two test results but the Balke and maximum oxygen intake results were not significantly related. The subjects were assigned randomly to groups training 0, 1, 2, 3, or 5 days/week on the treadmill at progressive grades for 5 weeks before retesting. Maximum oxygen intake was not significantly increased but the results of the other two tests showed improvement. Improvements on the Balke test were related to the frequency of training but the aerobic capacity prediction showed superior improvement for the 2 day per week group. The number of training runs in which subjects completed the 10-min. run at a specified grade was similar for the 2, 3, and 5 day/week groups.

294. PFEFFER, Ronald D. The effect of various training methods upon the phasic muscular strength and endurance of college wrestlers. M. S. in Physical Education, 1966. 42 p. (B. J. Sharkey)

New York University, New York City (R. A. Weiss, P. Rowe)

295. BILOWIT, David S. A test of the inhibition theory of strength development. Ph. D. in Physical Education, 1966. 76 p. (R. A. Weiss)

The inhibition theory of strength development was tested by increasing the strength of the elbow extensors through a series of exercises under one set of conditions and testing these muscles under other conditions to determine whether transfer of strength occurred. Male college students (N = 48) were randomly selected and assigned to three experimental groups and a control group. The subjects were pretested; the experimental groups exercised, and all subjects were post-tested. Analysis of variance and Scheffé Test showed a significant difference in strength gains for muscles which were tested in positions similar to the exercise conditions and the same muscles when tested in other positions.

296. BULL, Richard. Cinematography and modern dance composition. M.A., 1965. 115 p. (G. Andrews)

297. DARBY, Martha. Dance choreographed to Concerto Grosso-Baroque. M.A., 1965. 55 p. (G. Andrews)

298. FRANKLIN, Theresa. God's velvet shadows: Modern dance composition and study of the Negro spiritual. M.A., 1966. 138 p. (P. Rowe)

299. FRIEDMAN, Loretta. A series of dances based on Haiku poetry. M.A., 1966. 84 p. (G. Montgomery)

300. HURD, Julia. Spoon River portraits (dance choreography). M.A., 1965. 102 p. (G. Andrews)

301. KARBE, Wolfgang W. The relationship of general anxiety and specific anxiety concerning the learning of swimming. Ph.D. in Physical Education, 1966. (M. A. Gabrielsen)

Physically normal college women (N = 92) were divided into high, medium, and low general anxiety groups with the IPAT anxiety scale and similar specific anxiety groups with an anxiety and fear check list. The Red Cross method of teaching swimming was used with a fear-reducing approach added. Analysis of covariance showed that the high generally and specifically anxious subjects learned fewer skills after eight lessons but their performance equalled that of the low anxious group after 16 lessons.

302. LEACH, Glenn Curtis. Physical education legislation in the Middle-Atlantic states. Ed.D. in Physical Education, 1966. 177 p. (R. A. Weiss)

Criteria were developed and validated for evaluating principles of physical education, physical education legislation, and school laws in general. The predominant opinion among physical educators was that specific physical education legislation was inflexible and should be avoided. Laws should be of a general enabling nature which granted state boards of education the power to formulate rules and regulations. These rules and regulations would carry the power of law but could easily be changed without legislative action as the need arose.

303. LOUD, Carol. A dance presentation for children in hospitals. M.A., 1965. 139 p. (G. Andrews)

304. NELSON, Arthur J., Jr. The relationship of gamma efferent innervation to tension in resting skeletal muscle of young adult males. Ph.D. in Health Education, 1966. 108 p. (R. C. Brown, Jr.)

Electromyograms and Achilles tendon tensions were recorded simultaneously from 20 healthy young adult males having one gastrocnemius-soleus muscle group with intact innervation and the other gamma de-efferented. The two Achilles tendon dynamometers were specially constructed and had reliability coefficients of .999 and validity coefficients of .998. The mean tension loss of 2.16 kilograms in the gamma de-efferented gastrocnemius-soleus group was significant at the .01 level. The muscle group with intact innervation had significantly greater tension.

305. PARGMAN, David. The relationship of weight loss to strength changes in obese adult females. Ph.D. in Physical Education, 1966. 83 p. (R. C. Brown, Jr.)

Grip, elbow flexion, and knee extension strengths and the Na and K in body serum and urine creatinine concentrations were measured in 25 obese adult females before and when 8, 16, 24, and 33 percent had been lost during a 3-month period with a daily intake of 600 calories. The average overweight loss was 36 lb. but none of the other measures changed.

306. SHERWOOD, Lynn. A program of sacred dance. M.A., 1965. (G. Andrews)

North Carolina College, Durham, North Carolina (R. E. Townes)

307. ALSTON, Joseph L. The attitude of teachers toward the physical education requirement in selected schools in Virginia. M.S. in Physical Education, 1966. 56 p. (R. E. Townes)

The Wear attitude inventory was administered to 298 high school teachers. This sample represented teachers of music, foreign languages, social studies, home economics, mathematics, art, industrial arts, business education, vocational agriculture, science, and health and physical education. As a group, these teachers accepted the physical education requirement favorably. Sex had no bearing on attitude, but the science teachers held the physical education requirement lower in esteem than any other group.

308. BARDEN, Annette R. A study to determine the relationship between motor ability and social adjustment of girls. M.S. in Physical Education, 1966. 36 p. (R. E. Townes)

The Newton motor ability test and the Washburne social adjustment inventory was administered to 30 girls in grades 8 and 11. While both groups showed a positive relationship between motor ability and social adjustment, the grade 11 girls showed a considerably higher relationship.

309. BARON, Charles J. A comparative analysis of the change in physical fitness status of boys. M.S. in Physical Education, 1966. 47 p. (R. E. Townes)

The AAHPER youth fitness test was administered to 50 12-year-old boys in grade 7 (N = 50) and 14-year-old boys in grade 9 (N = 50) before and after a physical fitness program. Both groups improved, but the greater gain of the grade 7 boys was significant at the .05 level.

310. BOONE, Herman. A comparison of the physical fitness level of urban and rural boys. M.S. in Physical Education, 1966. 52 p. (R. E. Townes)

The AAHPER youth fitness test was administered to 100 rural and 100 urban boys. The urban boys were superior to the rural boys and the difference was significant at the .01 level. The two samples were weaker on the same components of physical fitness.

311. CORBETT, Sandra T. The physical fitness of women smokers and nonsmokers. M.S. in Physical Education, 1966. 36 p. (R. E. Townes)

A physical fitness test devised by the Division of Girl's and Women's Sports was administered to 20 smokers and 20 nonsmokers in physical education classes at North Carolina College at Durham. The overall performance of the nonsmokers was significantly superior at the .01 level, along with their arm and shoulder strength and endurance. The groups were not significantly different in agility and abdominal strength.

University of North Carolina, Greensboro, North Carolina

(G. M. Hennis)

312. BOLTON, Catherine A. A classification test for junior high school girls in physical education. M.S. in Physical Education, 1965. 70 p. (R. McGee)

Two tests with continuous performance items were devised and administered to one class each of grade 7, 8, and 9 girls. The tests gave similar results but test I was more efficient and preferred by experienced teachers so it was revised to consist of a side-step, a run, a 15-ft. wall pass, and a second run. Validation against skill ratings in four activities showed that it had acceptable validity and reliability for grade 9 girls but needed further revision for the other two classes.

313. BURNSTINE, Deidre. An historical and interpretive survey of attitudes and attitude research in physical education. M. Ed., 1966. 117 p. (G. Hennis)

Attitude research by physical educators was reviewed and summarized in chronological order. A second, topical grouping aided the interpretation of results and the assessment of potential value of such research for physical education.

314. BUSCH, Roxanne Emily. The construction of a fencing skill test using a moving target. M. Ed., 1966. 50 p. (R. McGee)

Beginning fencing students (N = 28) served as subjects and four validity criteria were developed from a double round-robin tournament after class instruction. The device appeared beneficial in teaching distance and accuracy. The final test on the device with eight trials per subject required slightly less than two class periods. The rank difference reliability coefficient by the split-half method was .51 or .71 for the full test. The reliability was inadequate for the number of trials required and the validity by any of the 4 methods of scoring the tournament results was negligible.

315. DAVIS, Patricia A. A manual for teaching attack volleyball to high school students and beginners. M. Ed., 1966. 202 p. (M. Riley)

The manual included skills descriptions, strategy, curriculum organization, teaching methods, and coaching hints. The proposed method emphasized the offensive aspects of the game but gave the beginner skills for participation before proficiency in volleying had been developed.

316. GIROUD, Carol Amie. A comparison of eye, hand, and foot dominance, reading achievement, and motor performance of selected fifth grade boys and girls. M. Ed., 1966. 74 p. (G. Hennis)

Eye, hand, and foot dominance tests and agility, static balance, back and shoulder flexibility, manual dexterity, and hand-eye coordination tests were given to boys and girls with IQ's above 89 who had reading abilities from one year below to two years above the grade 5 level. Dominance did not significantly affect motor performance and did not appear related to reading ability but over-achievers in reading had significantly greater manual dexterity.

317. KILLAM, Mary Frances. The relationship between the body-image and movement-concept of college freshmen women with low, average, and high motor ability and posture. M. Ed., 1965. 60 p. (D. Davis)

Groups of freshman women (25 each) who were high, average, or low on both the Scott three-item motor ability test and the New York State posture rating test were given Q-sorts to measure body-image and movement-concept. The correlation between body-image and movement-concept within the low group was significant at the .05 level but was not significant within the other two groups. Differences between body-image and movement-concept were not significantly different within groups. Movement-concept scores differed significantly between the low and high groups but not between the average group and the other two. Body-image scores did not differ significantly among groups.

318. KOENIGSBERT, Ruth E. The development of an instrument for measuring strength of elbow flexion in elementary school children. M.S. in Physical Education, 1966. 53 p. (G. Hennis)
The "bar-scale" test utilized either a Chatillon spring scale or a regular bathroom scale and a portable chinning bar set in a doorway. The test was administered to 112 boys and girls in grades 4, 5, and 6 and elbow flexion strength was also measured with a cable tensiometer. Validity, reliability, and objectivity were determined within grades and sexes. The bathroom scale generally produced higher correlations than the Chatillon scale and using the highest score proved slightly better and was easier than using the total score. The "bar-scale" test proved reliable for all groups except the grade 6 girls, proved valid for all groups except grade 4 boys, and had satisfactory objectivity for all groups.

319. NELSON, Sara Marie. An investigation of the relationship between the real self-concept--ideal self-concept and motor ability of eighth grade girls in physical education. M.Ed., 1966. 80 p. (C. Ulrich)
The 42 subjects were tested before and after a 7-week basketball unit for motor ability with Scott's 3-item test and for real-self and ideal-self concepts with a 75-statement Q-sort technique. They were classified into low, average, and high motor ability groups. Self-concept showed no significant differences among motor ability groups before or after the basketball unit, although ideal-self concepts changed for the average and high motor ability groups and real-self concepts changed for all groups. Self-concept had no significant relationship with motor ability and real-self concept had no significant relation with ideal-self.

320. PANKONIN, Jean. A study of the relationship of selected measures to tennis ability. M.S. in Physical Education, 1966. 69 p. (F. Pleasants)
Randomly selected college women (N = 33) from seven beginning tennis classes were tested in agility, balance, hand-eye coordination, grip strength, height, and arm and shoulder strength. The criterion of tennis ability was the combined T-score from the Dyer test, Broer-Miller forehand-backhand test, and skill ratings by three judges. The most economical predictor of tennis ability combined agility, balance, and arm-shoulder girdle strength for an r of .62. Adding height and grip strength improved the r slightly although the correlations of grip strength and hand-eye coordination with tennis ability were not significant.

321. PEABODY, Sandra. The construction of 8mm color loopfilms with accompanying teachers guide for selected beginning foil-fencing skills. M.Ed., 1966. 68 p. (G. Hennis)
The 13 colorfilm loops covered the grip, salute, and on-guard positions, the advance and retreat, the lunge, the beat simple attack, parries, and riposte, parries of fourth, sixth, seventh, eighth and riposte, the disengage, the double disengage, the cutover, and the bout.

322. PECK, Arden. The influence of anxiety on volleyball skills.

M. Ed., 1966. 69 p. (F. Pleasants)
The 32 students in a volleyball class were divided into two matched groups on the basis of the IPAT 8-parallel-form anxiety test prior to 13 class meetings during which the French and Cooper serve and repeated volleys tests were given at the beginning, middle, and end of the meetings. Induced anxiety was attempted by verbal and written suggestions that inadequate test performance would result in a low final grade. Performance improved significantly on the skill tests but the correlations between anxiety and test performances were not significant. Induced anxiety produced significant changes in anxiety but the changes were not uniformly in the same direction.

323. SCHUMM, Maryanne M. The effectiveness of a selected aiming method in archery for use with cross-dominant subjects. M. S. in Physical Education, 1966. 59 p. (G. Hennis)
Nine sophomore and five graduate women with crossed eye-hand dominance, and at least a semester of previous archery instruction were paired into two groups on the basis of pretest archery scores. The experimental group practiced aiming with an eye patch over the dominant eye as suggested by Falkenstine, and Edwards and Heath. Using the eye patch was not detrimental, but the mean performances on the fourth trial and post-test showed no significant difference between using and not using eye patches.

324. SMITH, M. Elaine. A study of two methods of teaching beginning bowling to college women. M. Ed., 1966. 58 p. (G. Hennis)
College women (N = 48) in three beginning bowling classes were divided randomly into a control group taught by the traditional method and an experimental group taught by the problem-solving method. The same instructor taught both groups, and covered the same material. Both groups showed significant improvement from the initial to final 5-game averages, but the difference in method produced no significant difference between groups, either in skill, or on a knowledge test of 45 multiple choice questions.

325. STARK, Karen Leigh. The cerebral palsied and physical education. M. Ed., 1966. 97 p. (C. Ulrich)
Static and dynamic balance tests, cable tensiometer tests of shoulder and elbow flexion and extension and knee extension strength, abdominal curls, and the rhythm section of the Seashore measures of musical talents were given to six mild and one medium cerebral palsied children before and after 4 weeks of specially selected rhythmic exercises, dancing, and bowling. The instruction was appreciated and significant improvement resulted in dynamic balance and abdominal strength, but not in rhythm, static balance, and the other strengths.

326. STEPHENS, Myrna L. The relative effectiveness of combinations of mental and physical practice on performance scores and level of aspiration scores for an accuracy task. M. S. in Physical Education, 1966. 77 p. (G. Hennis)
Four groups of 9 women each were tested for accuracy in ball throwing six times in 2 weeks with 9 trials per session. Each group had a combination of two levels of mental and physical practice, and the subjects stated their level of aspiration before each session. Analysis of covariance showed no significant difference between the treatments, but the level of aspiration correlated significantly with the most recent preceding performance and the subsequent performance.

327. TOMLIN, Frances Ann. A study of the relationship between depth perception of moving objects and sports skill. M. S. in Physical

Education, 1966. 56 p. (R. McGee)
Depth perception was measured with the Haward-Dotman apparatus which was also adapted to measure depth perception with a moving object. Both depth perception tests proved reliable, but the correlation between the depth perception tests was low positive, and the correlations between the depth perception tests and a badminton wall volley test, softball repeated throws test, and a tennis wall volley test were not significant.

328. TYLER, Allene. The sizing and design for physical education uniforms. M.S. in Physical Education, 1966. 88 p. (V. Morris)
Bust, waist, hip, and backwaist measurements were taken on 129 grade 7 girls, 131 grade 10 girls, and 144 college freshman women. Means of these measurements were compared with three company standards, government standards, and pattern standards. A recommended sizing chart was constructed from the sample, and a practical and appropriate physical education uniform was designed.

North Texas State University, Denton, Texas

(J. E. Douthitt)

329. CLARK, Joyce J. A study of the effects of three programs upon the development of the volley and the serve as used in the sport of volleyball. M.S. in Physical Education, 1966. 40 p. (I. Caton)

330. DeFORD, Carolyn J. A study of the relationship of three surfaces on the performances of high-school girls in the shuttle run. M.S. in Physical Education, 1966. 31 p. (I. Caton)

331. THOMPSON, Charles J. The effects of two methods of training on arm strength. M.S. in Physical Education, 1966. 40 p. (J. E. Douthitt)

Northeast Missouri State Teachers College, Kirksville, Missouri

(G. W. Hermann)

332. AESCHLIMAN, Warren W. History of the Mineral Water Bowl game. M.A. in Physical Education, 1966. 100 p. (R. C. Fort)

333. DARRAH, Robert L. The history of the Lemosa league: An interscholastic athletic conference in southeastern Iowa. M.A. in Physical Education, 1966. 50 p. (G. W. Hermann)

334. DAW, Harry A. A survey of the academic preparation and teaching duties of male physical educators and varsity athletic coaches in selected high schools of Missouri. M.A. in Physical Education, 1966. 46 p. (G. W. Hermann)

335. JACOBS, David H. An investigative study of physical education programs on the primary and secondary school levels in England. M.A. in Physical Education, 1966. 68 p. (G. W. Hermann)
Data were collected by observation and interview while visiting 27 primary and secondary schools in England. Much emphasis was placed on individual development with basic movement and gymnastics programs (using extensive apparatus), swimming, simplified games and athletics, and some dancing. The lessons tended to be informal and free, with the teacher guiding and suggesting rather than dominating. The English primary students had better upper body development than students in the United States. The objectives at the secondary level seemed similar to those in the United States. Basic movement and gymnastic skills were

further developed and the sports program was directed toward leisure activities after schooling had finished. Activity clubs had continuing, increasing popularity and provided recreation for all age groups.

336. SCHIMMELPFENNIG, Jerry D. A comparison of weight training and isometric exercises in an athletic power development program. M.A. in Physical Education, 1967. 38 p. (G. W. Hermann)

337. STOOPS, Nancy L. A study of adaptive physical education in certain Iowa public schools. M.A. in Physical Education, 1966. 73 p. (G. W. Hermann)

338. WILSON, Karen S. The effects of ability grouping upon learning volleyball skills. M.A. in Physical Education, 1966. 36 p. (G. W. Hermann)
Junior high school girls (N = 61) in two physical education classes served as subjects. The Russell-Lange volleyball test was used to group the classes, one heterogeneously and the other homogeneously, prior to a 6-week volleyball unit. Retesting showed that the heterogeneously-grouped class made greater improvement and the less skilled players in both classes gained the most but the mean differences between groups were not significant at the .05 level.

Ohio State University, Columbus, Ohio (D. K. Mathews)

339. CHAPMAN, Arthur E. A comparison of the effects of wearing no shirt, a dry shirt, and a wet shirt on temperature regulation during exercise. M.S. in Physical Education, 1966. 52 p. (D. K. Mathews)
Six subjects ran 30 min. on a treadmill at 6 mph. Heart rates and rectal and skin temperatures were measured to determine effect of running under each condition. The results showed no significant differences among the conditions in rectal temperature. A wet shirt appeared detrimental to heat loss on parts of body covered with the shirt.

340. COATES, Edward. The relationship of the Ohio State University physical education index to achievement. Ph.D. in Physical Education, 1966. 107 p. (L. A. Hess)
The study investigated the relationship of the Ohio State physical education index to achievement attained by physical education major students. Successful major students were significantly better in motor skills but not physical fitness when compared with dropouts. In areas studied, the ability to perform individual skills was specific to that task.

341. CRASE, Darrell. An analysis of professional interests and attitudes of male physical education teachers in the public secondary schools of Ohio. Ph.D. in Physical Education, 1966. 135 p. (L. A. Hess)
This was a descriptive study which attempted to derive attitudes and practices of secondary school teachers with respect to teaching physical education and health education and coaching interscholastic athletics. Through simple statistical treatment, it was concluded that attitudes and practices were generally positive.

342. DAVENPORT, Joanna. The history and interpretation of amateurism in the United States Lawn Tennis Association. Ph.D. in Physical Education, 1966. 190 p. (B. L. Bennett)
The United States Lawn Tennis Association was studied with major emphasis on its handling of the problem of amateurism. Main sources of data were USLTA minutes from 1881 to 1966 and personal interviews

with players, reporters, and officials. Two major weaknesses were the lack of specific legislation until infractions could no longer be ignored, and the need for more severe punishment for excessive expense money allowances.

343. ELFENBAUM, Louis. The physiological effects of rapid weight loss among wrestlers. Ph.D. in Physical Education, 1966. 110 p. (D. K. Mathews)
Effects of rapid weight loss were evaluated in terms of strength, maximal oxygen consumption, heart rate, core temperature, and sweat loss. Maximal oxygen consumption decreased, heart rate increased, and heart rate recovery time was inversely proportional to weight reduction. Dehydration exceeding 4 percent of body weight was detrimental to performance.

344. HARPER, Donald D. Effect of interval, recreational, calisthenics, and marching training programs on fitness in man. Ph.D. in Physical Education, 1966. 84 p. (D. K. Mathews)
Subjects (N = 25) were evaluated for maximum oxygen uptake, the Harvard step test, and the Army physical fitness test at the beginning of the study. They were then exposed to 7 weeks of interval, recreational, calisthenics, and marching type training. Post-training test evaluation demonstrated interval training to be superior to the other training programs.

345. KAHRS, Karol Anne. Group difference of personality qualities among physical education major students, dance major students, physical education faculty, and general college freshmen. M.A. in Physical Education, 1965. 55 p. (E. P. Wooten)

346. KNIGHT, Martha B. A survey comparing seven recognized junior tennis development programs to establish guidelines for such programs. M.A. in Physical Education, 1966. 113 p. (V. R. Crafts)
Each program seemed to be an unique combination of private organizations, agencies, and businesses.

347. MALMISUR, Michael C. Selected physical characteristics of junior Davis Cup players and their relation to success in tennis. Ph.D. in Physical Education, 1966. 137 p. (L. A. Hess)
Agility, arm-shoulder coordination, pure speed, depth perception, reaction time, movement time, dynamic balance, wall rebounding, weight and height showed no significant correlation with success in tennis for this group.

348. MELNICK, Merrill J. The effects of overlearning on the retention of a gross motor skill. Ph.D. in Physical Education, 1966. (B. L. Bennett)
Eighty male students served as subjects for determining the effects of 0, 50, 100, and 200 percent overlearning on a stabilometer after no-practice intervals of one week and one month. In addition to other findings, this study questioned the concept that overlearning accounts for the persistence of motor skills over periods of no-practice.

349. OLSON, Edward C. Identification of personality differences among male tennis players. Ph.D. in Health and Physical Education, 1966. 118 p. (L. A. Hess)
This study attempted to discern the personality differences among outstanding male tennis players. Relative to categories established by tennis experts, "champions" were more inner-directed, more pragmatic, and more extroverted than "near-great" tennis players.

350. SIMONIAN, Charles. A descriptive analysis of selected male freshmen majoring in physical education at the Ohio State University. Ph.D. in Physical Education, 1966. 80 p. (C. G. Hixson)
Of 54 interviewed subjects, 29 were still in the program after the freshman year. The mean ACT score of the subjects was 18.3 as compared with 22.7 for all university freshmen. An r of .749 was obtained between earned grades and grades predicted on the basis of ACT scores and high school ranks.

351. STEIG, Peggy A. A study to determine the use of developmental tasks as a source for the identification of health interests of adolescents in grades ten through twelve. Ph.D. in Health Education, 1966. 104 p. (W. P. Cushman)
The hypothesis of the study that health questions related to the development task concept of growth and development would be of greater interest to senior high school students than questions derived from the health content areas was tenable. A t test and analysis of variance were employed to test for differences among subgroups within the population.

352. WOODS, Marcella D. An exploration of developmental relationships between children's body image boundaries, estimates of dimensions of body space, and performance of selected gross motor tasks. Ph.D. in Physical Education and Developmental Psychology, 1966. 192 p. (M. A. Mordy)
Boys and girls ages 8, 10, and 12 (N = 143) were subjects. Analysis of data suggested a developed differentiation trend because parallel development appeared to be occurring in boundary definiteness, cognitive functioning, and gross motor performance. The findings suggested a reciprocity function between the three areas investigated.

University of Oregon, Eugene, Oregon (E. R. Reuter)

353. ANDERSON, Robert B. A study of personal adjustment and social status measures of nonparticipants and athletic groups of boys ten to fifteen years of age. Ed.D. in Physical Education, December, 1965, 128 p. (H. H. Clarke)
The subjects were 108 elementary school and 139 junior high school boys; 71 of the elementary and 76 of the junior high school boys had varying degrees of success on interscholastic athletic squads. The athletes at each school level were rated by their coaches as outstanding, regular players, and substitutes. Successful athletes evidenced a higher level of peer status and social adjustment than boys who were less successful or who had no experiences in interschool athletic competition, at least for elementary school boys. Few significant differences from responses to the mental health analysis were found, except for its social participation section.

354. BILIK, Edward R. Muscular strength interrelationships among upper elementary, junior high, and senior high school boys. Ed.D. in Physical Education, December, 1966. 178 p. (H. H. Clarke)
Twenty-five cable-tension strength tests were administered to 24 boys in grades 4 through 12. At the upper elementary, junior high, senior high school levels, and all levels combined, these strength tests were intercorrelated, and multiple correlations were computed using the average of all strength tests as the dependent variable. The highest intercorrelations at the three school levels were .917 and .811 between shoulder extension and shoulder adduction for junior and senior high school boys, respectively, and .820 between shoulder extension and elbow flexion for elementary school boys. Multiple correlations between .963 and .985

were obtained at all levels separately and combined, using shoulder extension, ankle plantar flexion, and knee flexion strength.

355. BREWER, Sheila Lucille. Statistical analysis of a medically supervised weight control program. M.S. in Physical Education, 1966. 92 p. (E. P. Wooten)

356. BROEKHOFF, Jan. Relationships between physical, socio-psychological, and mental characteristics of thirteen-year-old boys. Ph.D. in Physical Education, June, 1966. 303 p. (H. H. Clarke)
Tests of physique type, maturity, body size, strength, muscular endurance, motor performance, personality, motivation, self-image, social status, interest, academic achievement, and intelligence were administered to 13-year-old boys (N = 95). The physical fitness index and arm-shoulder muscular endurance tests correlated positively and significantly with three scales of the California psychological inventory, with both scales of the social behavior trend, with the Stanford academic achievement test, and academic interest. High PFI boys tended to be outgoing, enterprising, and competitive, and performed well in their school work; they showed interest in academic subjects and were favorably rated by their teachers. Generally, boys with high gross muscular strength appeared to be aloof and defensive and showed signs of adjustment problems. Boys with high motor ability tended to be active, ambitious, confident, and alert; they were popular among teachers and peers and performed well in school. Meso-endomorph and mesomorph groups appeared more active, confident, enterprising, and outgoing than the ectomorphs. These boys, generally, chose the mesomorphic type as the ideal physique. Taller boys with high gross muscular strength, who were most advanced in skeletal ages, tended to be defensive, rebellious, and inhibited.

357. DAY, James A. P. Relationship between intelligence and selected physical, motor, and strength characteristics of boys nine, thirteen, and seventeen years of age. M.A. in Physical Education, 1965. 97 p. (H. H. Clarke)
This study was based on data from 140 9-year-old boys, 214 13-year-old boys, and 133 17-year-old boys. Correlations were computed at each age between intelligence measures and tests of maturity, physique type, body size, muscular strength and endurance, and motor performances. Only about 4 percent of the correlations were significant at the .05 level and these could have occurred by chance.

358. DOWNIE, Patricia D. A study of the relationship between flexibility measures and chronological ages of six- to ten-year-old girls. M.S. in Physical Education, 1965. 154 p. (P. O. Sigerseth)
Nineteen flexibility measurements were taken on 140 girls in the elementary schools of Springfield, Oregon, by means of a Leighton flexometer. The means for age groups showed no significant differences in the following 11 measurements: neck flexion-extension, neck rotation, arm flexion-extension, trunk flexion-extension, hip flexion-extension, thigh rotation, knee flexion-extension, ankle flexion-extension, foot supination-pronation, elbow flexion-extension, and hand lateral flexion. In the following eight tests, significant differences were found between the girls of different ages: neck lateral flexion, arm adduction-abduction, arm rotation, trunk lateral flexion, trunk rotation, thigh adduction-abduction, hand supination-pronation, and wrist flexion-extension.

359. FERRIS, Blake F. The relationship between spinal flexibility and selected measures of abdominal strength and endurance. M.S. in Physical Education, 1966. 73 p. (E. R. Reuter)

360. FLOWER, M. Lorraine. Muscular strength interrelationships among upper elementary, junior high, and senior high school girls. Ph.D. in Physical Education, 1966. 143 p. (H. H. Clarke)
Twenty-five cable-tension strength tests were administered to 24 girls at each grade from grades 4 through 12. At the upper elementary, junior high, and senior high school levels and all school levels combined, these strength tests were intercorrelated and multiple correlations were computed using the average of all strength tests as the dependent variable. The highest intercorrelations among the strength tests at the three school levels were between .750 and .787 for shoulder extension and shoulder adduction. The highest multiple correlations were: .96 for the upper elementary level using shoulder extension, trunk flexion, hip extension, and knee flexion, .95 for the junior high level using shoulder extension, hip inward rotation, and hip extension, and .97 for the senior high level using ankle plantar flexion, hip flexion, and shoulder flexion.

361. FLYNN, Kenneth W. Relationship between various standing broad jump measures and strength, speed, body size, and physique measures of twelve-year-old boys. M.S. in Physical Education, 1966. 90 p. (H. H. Clarke)
With 203 12-year-old boys as subjects, the following standing broad jump criteria were studied: distance jumped, distance X body weight, body weight/distance, and leg length/distance. These criteria were intercorrelated and correlated with 20 measures of strength, speed, body size, and physique. A multiple correlation of .917 was obtained for distance jumped X body weight using weight, strength index, and skinfold total. The multiple correlation for body weight/distance was .908 using abdominal girth, PFI (negative), and skinfold total.

362. GRAY, Charles A. The effect of daylight projection of film loops on learning in badminton. M.S. in Physical Education, 1965. 85 p. (W. Brumbach)

363. GRAY, Charles A. Factor analysis of cable-tension strength tests for upper elementary, junior high, and senior high school boys. Ed.D. in Physical Education, 1965. 120 p. (H. H. Clarke)
Twenty-five cable-tension strength tests were factor analyzed by the principal axes method with Varimax rotation at each of three school levels, upper elementary, junior high, and senior high. In each grade 24 boys were tested, or 72 at each school level. Most of the rotated factors had moderately high loadings for only a single strength test. Shoulder extension strength had the highest principal axes loadings at all school levels, ranging from .852 to .917; others varied between .73 and .84. The presence of a general strength factor could not be justified except by inclusion of many or all strength tests. Thus, strength was more specific than was anticipated.

364. HACKBARTH, Linda Arlene. A case study of motor skill achievement in children exhibiting learning disabilities. M.S. in Physical Education, 1966. 136 p. (E. P. Wooten)

365. HAMAR, Lois L. Case studies of 1966 Oregon high school girls track and field record holders. M.S. in Physical Education, 1966. 65 p. (E. P. Wooten)

366. HILTON, Susanne Lee. Cardiovascular and respiratory changes in married women after a twelve-week program of progressive jogging. M.S. in Physical Education, 1966. 87 p. (E. P. Wooten)

367. HOWE, Bruce L. Test profiles of outstanding twelve-year-old

elementary school athletes at nine, twelve, and fifteen years of age. M.S. in Physical Education, 1966. 233 p. (H. H. Clarke)
T-scale profiles based on 16 maturity, body size, strength, motor ability and mental ability measurements taken at ages 9, 12, and 15 years were constructed for 20 athletes. The 5 who were outstanding at both age 12 and 15 were average or above on all tests at the 3 ages and were definitely higher in strength, endurance, and motor performance at age 15. The 9 who were outstanding at age 15 only had above average body size at all 3 ages, had improved their relative strength but not endurance from age 9 to age 12, and had improved their relative strength and arm-shoulder endurance greatly by age 15. The 6 who were outstanding at age 12 only were generally average or below average in skeletal age and body size but above average on other tests at ages 9 and 12 and then were relatively lower on most tests at age 15.

368. INSLEY, Gerald Sloane. Differences in the height, weight, and physical performance of sixteen-year-old Navajo and Caucasian males. Ed.D., 1966. 111 p. (P. O. Sigerseth)
Measurements of height, weight, agility, balance, power, speed, and the strength of selected muscle groups were obtained from 13 Navajo boys in an integrated high school, 21 Navajo boys in an Indian school, and 22 Caucasian boys in a public high school. The data were intercorrelated and treated with analysis of variance followed by Scheffé's method for post hoc comparisons when F was significant. The two Navajo groups did not differ significantly on any test. The Caucasian group tended to be superior in height, weight, strength, and performance but were significantly superior in only a few isolated strength tests.

369. JORDAN, David B. Longitudinal analysis of strength and motor development of boys ages seven through twelve years. Ph.D. in Physical Education, 1966. 266 p. (H. H. Clarke)
Boys (N = 93) were studied longitudinally from ages 9 to 12 years and data from 47 subjects were available from ages 7 to 12 years. A moderate degree of inter-age consistency was found over the 6-year period for bar push-ups, standing broad jump, 60-yd. shuttle run, cable-tension strength average, strength index, and physical fitness index; the highest of these were for bar push-ups, .886 between age 11 and 12 years, .876 between age 8 and 9 years, and .826 between age 10 and 11 years. The comparisons of the strength and motor ability means for advanced and retarded maturity groups revealed continuous significant differences for the two gross strength test batteries, cable-tension strength average, and strength index. When the growth patterns of high and low PFI groups were compared, continuous significant differences were obtained for bar push-ups and strength index over the 4-year period.

370. LARSON, Edgar D. Emotional responses of basketball players. Ph.D. in Physical Education, 1966. 102 p. (P. O. Sigerseth)
Galvanic skin responses were recorded on 12 college varsity basketball players at various times. GSR's before and after each practice and game were significantly higher than those before the practice season started. Regular players tended to show the largest and substitutes the least increase over the preseason norm. GSR's after conference games were significantly higher than those after other games. The largest GSR's occurred after conference games, the next largest after games that were lost, and the third largest before games that were won. A correlation between ranks in the normal GSR test and scoring in games was insignificant.

371. MENDRYK, Stephen. Effects of isometric, isotonic, and speed conditioning programs on speed of movement, reaction time, and

strength of college men. Ph. D. in Physical Education, 1966. 91 p. (H. H. Clarke)

Four groups in 18 or 19 college men each were given 6 weeks of treatment with ultraviolet light control, or speed of movement exercise, isometric exercise, or isotonic exercise. Speed of hip flexion had a low positive correlation with static strength and strength/mass. Insignificant correlations were obtained between reaction time and speed of movement but significant correlations occurred between percentage changes in reaction time and speed of hip flexion for the total sample and for the control group. Both correlational and covariance analyses indicated that significant differences in hip flexion strength were not accompanied by correspondingly significant increases in hip flexion speed. Both the isometric and isotonic groups exhibited significant increases in strength and strength/mass but the differences between the groups were not significant.

372. MOORE, Sylvia L. The effect of homogenous and heterogeneous grouping on motor skill learning of college women in elementary archery. M. S. in Physical Education, 1966. 86 p. (W. Brumbach)

373. OJA, George. The relationship of reading achievement to motor performance, eye-hand coordination, lateral dominance, and selected visual factors. M. S. in Physical Education, 1966. 89 p. (E. P. Wooten)

374. PIES, William P. The effects of a circuit training weight program on the physical fitness of college men. M. S. in Physical Education, 1966. 68 p. (E. R. Reuter)

375. RAGSDALE, Lee V. Contrast of maturity, physical, and scholastic measures between boys who elect and who do not elect physical education in grade eleven. Ed. D. in Physical Education, 1966. 148 p. (H. H. Clarke)

Four groups were formed from 93 boys, aged 16 years, who in combination did or did not elect physical education and did or did not participate in interscholastic athletics. At grade 10, no significant difference was found between boys who elected and those who did not elect physical education for tests of maturity, somatotype, body size, strength, bar dips, 10-ft. run, and intelligence. Athletes who elected had a better 60-yd. run mean but a lower grade point average than athletes who did not elect physical education. Nonathletes who elected had significantly better means than nonathletes who did not elect physical education on Rogers' arm strength score, bar dips, standing broad jump, 60-yd. shuttle run, and total-body reaction time. At grade 11, those who participated in neither athletics nor physical education had arm strength, strength index, and bar dip means significantly lower than the other groups.

376. SINCLAIR, Gary D. Stability of physique types of boys nine through twelve years of age. M. S. in Physical Education, 1966. 138 p. (H. H. Clarke)

Somatotypes of 100 boys were obtained annually from 9 through 12 years of age. They were also given 12 tests of maturity, body size, strength, muscular endurance, and motor performance. The differences between the means of the three somatotype components for the 4 years were not significant. Individual changes in somatotype designations occurred but interage correlations ranged from .76 to .85 for endomorphy, .80 to .93 for mesomorphy, and .79 to .89 for ectomorphy. Correlations between somatotype components and the 12 tests showed much the same pattern over the four years. Multiple correlations of sufficient magnitude to warrant prediction were obtained between endomorphy and ectomorphy and various combinations of experimental variables at each of the ages. The multiple correlations ranged from .91 to .95.

377. SINNING, Wayne E. Breathing and heart rate adjustments to brief static and dynamic exercises of equal resistance. Ph. D. in Physical Education, 1966. 179 p. (P. O. Sigerseth)
Twelve male subjects performed static and dynamic elbow flexion exercises against resistance equalling 70, 50, and 25 percent of each subject's maximum strength. Pulmonary minute volumes during the first 15 sec. were similar for all exercises and remained constant for dynamic exercises during the next 15 sec. but decreased for static exercises. These differences were not reflected in the end-expiratory partial pressures of carbon dioxide and oxygen. Expiratory pressure rose atypically after ceasing the 70 percent exercises. The heart rate response patterns were similar during static and dynamic exercise and recovery but static exercise at the 50 and 70 percent levels produced significantly higher heart rates than dynamic.

378. SLATER, Morris B. An identification and comparison of some philosophical beliefs in the area of physical education held by elementary school teachers. M. S. in Physical Education, 1966. 108 p. (W. Brumbach)

379. WILMORE, Jack H. The physical work capacity of girls, seven to thirteen years of age. Ph. D. in Physical Education, 1966. 93 p. (P. O. Sigerseth)
The subjects rode to exhaustion on a bicycle ergometer with progressive step increments of load. Metabolic measurements were taken before and during the ride; ECG's were taken before, during, and after the ride. Submaximal heart rates were directly related to work capacity. Maximal and recovery heart rates were independent of age and work capacity. Recovery heart rates were also unrelated to the remaining physiological responses. Submaximal and maximal ventilation was related to working capacity and maximal ventilation was directly related to age. Submaximal oxygen consumption in terms of body weight was inversely related to age and working capacity. Maximal oxygen consumption was directly related to both age and working capacity only when expressed in liters per minute and not when related to body weight or surface area.

Pennsylvania State University, University Park, Pennsylvania

(E. A. Gross)

380. AGATE, Paul B. The immediate effects of two levels of isometric contraction on speed of movement. M. S. in Physical Education, 1966. 64 p. (R. C. Nelson)
The study evaluated the immediate effects of two levels of isometric contraction upon the speed of resisted and nonresisted elbow flexion. The levels of contraction were maximal, one-half maximal, and minimal (control). The test sequence consisted of five elbow flexion speed trials, an 8-sec. isometric contraction at one of the three levels, followed by five more speed trials. The results indicated that performance of isometric contractions had no immediate effect upon resisted or nonresisted speeds of movement. Contrary to previous studies employing a phasic overload, no "kinesthetic illusion" of increased speed was evidenced.

381. AL-TALIB, Nizar M. A comparative study of physical education in Iraq and the United States. M. S. in Physical Education, 1966. 82 p. (G. M. Lewis)

Printed guides for public elementary and secondary physical education programs were obtained from 6 state and 18 city directors in the United States and from the Ministry of Education in Iraq. These were supplemented with a comprehensive review of related literature. The recommended programs were markedly similar but influenced by local economic, social, and political factors. Swimming and gymnastics were not recommended in Iraq because of lack of facilities but boy scouting was an integral part of the program. Iraqi authorities recommended that more time should be devoted to physical education in elementary than in secondary schools while the converse was apparent in the United States.

382. CARSON, Mary M. The effects of dysmenorrhea and the menstrual cycle on selected tests of physical performance. M.S. in Physical Education, 1966. 79 p. (L. I. Magnusson)
College women (N = 84) averaging 18.5 years of age were divided into groups who experienced dysmenorrhea and restricted their physical activity, experienced dysmenorrhea but did not restrict their activity, or had no menstrual difficulty and continued their normal participation. Dynamic balance, back strength, and hand steadiness were significantly better during the intermenstrual and postmenstrual phases than during the premenstrual and menstrual phases but grip strength was not affected. Women experiencing dysmenorrhea performed as well as women who did not and the interactions were not significant.

383. DILLMAN, Charles J. Energy transformations during the pole vault with a fiberglass pole. M.S. in Physical Education, 1966. 109 p. (R. C. Nelson)
Four varsity pole vaulters were filmed during practice over a 4-week period. Every fifth frame of the best four vaults by each subject were analyzed with a Vanguard motion analyzer. The basic data were processed by a computer program that provided the center of gravity (segmental method), vertical and horizontal velocities, kinetic energy, potential energy, predicted height, actual height, and vertical work. The decrease in kinetic energy and increase in potential energy occurred at different rates during the vault. A large percentage of the initial kinetic energy was lost between take-off and maximum pole bend while only a small gain in potential energy occurred. But potential energy increased markedly as the pole uncoiled with only a slight loss in kinetic energy. The fiberglass pole provided an effective means of converting kinetic energy to potential energy.

384. HENRY, Charles W., Jr. William Glenn Killinger: athlete and coach. M.S. in Physical Education, 1966. 147 p. (G. M. Lewis)
W. Glenn Killinger was a noted and successful coach of athletics in the Middle Atlantic states from 1922 to 1964. Dr. Killinger's enthusiasm and desire helped him gain fame as an athlete and a coach and contributed to his greatest contribution to society - that of helping young adults become successful and productive citizens to their society.

385. PENCEK, Richard W. Effects of weight training on body weight, body density, and body fat. M.S. in Physical Education, 1966. 99 p. (C. A. Morehouse and G. A. Stull)
Body weight and selected skinfold and girth measurements of the chest, waist, and arm were recorded for each of the 68 experimental and 37 control subjects in a 7-week weight training program. Body density and body fat were estimated by means of regression equations. Weight training caused an increase in body weight, a reduction in body fat, and a resulting increase in body density. Reductions at selected skinfold sites of the chest, supra-ilium, and dorsum of the arm were also noted.

An increase occurred in chest girth and arm girth in both the relaxed and flexed positions, but waist girth was not altered.

Sacramento State College, Sacramento, California (D. R. Mohr)

386. AGID, Judy. The effects of three types of physical education programs on physical fitness improvement of high school girls. M.A. in Physical Education, 1966. 90 p. (D. R. Mohr)

Physical fitness tests were given before and after 6 weeks of basketball instruction, physical fitness exercises, or basketball designed to promote fitness to three classes of freshman girls, each with 35-45 students, at San Juan High School. Comparison with t showed that each program developed physical fitness as well as the other two in at least four of the six measures used.

387. BICAN, William L. Statistical calculations of the probabilities of scoring baserunners in high school baseball games. M.A. in Physical Education, 1966. 81 p. (F. B. Jones)

The probabilities of scoring from each base with each possible number of outs were computed from the official score books of two Sacramento high schools for the 10-year period from 1955 through 1964. Advancing the baserunner without giving up an out resulted in a discernible advantage. Stealing and taking an extra base on a hit were productive. Bunting with no outs had to succeed almost 100 percent of the time in order to gain an advantage. The sacrifice bunt with one out was not sound strategy since the probabilities decreased in all subsequent situations.

388. CONWAY, Jerry Dean. A brief history of intercollegiate football at Sacramento State College for the period 1954-1963. M.A. in Physical Education, 1965. 108 p. (F. B. Jones)

Information was obtained from interviews, the Sacramento Bee, and the college newspapers and yearbooks. The three head coaches contributed uniquely to the growth of the program. Community interest and support increased greatly with the development of a winning team. The lack of a grant-in-aid program had not seriously hindered recruiting adequate personnel for competition in the Far Western Conference.

389. ERICSON, Robert W. A study of successful maneuvers for various weight class wrestlers in selected high schools in the Sacramento area. M.A. in Physical Education, 1966. 106 p. (F. B. Jones and C. R. Boyes)

Data were collected during dual meets of four local high schools and six Northern California tournaments. The wrestlers executed a limited number of maneuvers. The champions in the four weight classes used the same maneuvers as the other wrestlers. The wrestlers were not aggressive in that they worked for points rather than pins.

390. GARCIA, Frank J. An investigation of the utilization of independent study time in the physical education program in the high school that has flexible scheduling. M.A. in Physical Education, 1965. 64 p. (F. B. Jones)

A review of related literature plus questionnaire returns and interviews indicated increased use of flexible scheduling with definite time for independent study. Physical education has a prime opportunity to present a program which interests students and encourages them to participate in activities during their independent study time or free modules. Independent study time was deemed desirable but required increased facilities and more professional instructors to function adequately.

391. HOLLAND, Judith R. Extra-class activities of California senior high school girls planning to teach physical education. M. A. in Physical Education, 1966. 58 p. (D. R. Mohr)

Original one-page questionnaires were sent for all girls in grades 10, 11, and 12 to 50 randomly selected California high schools. The returns indicated that more prospective women physical educators belonged to school clubs and significantly more participated in extra-class activities but their mean hours per week in various activities were not significantly different from those of other students.

392. JENNINGS, Larry. An analysis of floor shooting percentages in high school basketball. M. A. in Physical Education, 1966. 75 p. (F. B. Jones)

Shot charts from 83 varsity league games in the Capitol Valley conference for the 1964-65 season were analyzed. The proportion of shots made by the seven teams ranged from .515 to .211 with a mean of .382. No home court advantage was evident. The proportion of shots made generally decreased in the second half with the most drastic reduction in long shots. The second half reduction was as much as .41 in major games although home teams tended to show an increase in minor games.

393. MORRISON, Stanley Mack. Advantages and disadvantages in raising the height of the goal in basketball from the present ten feet to twelve feet. M. A. in Physical Education, 1966. 107 p. (F. B. Jones)

Comparison of experimental games with 10- and 12-ft. baskets showed that the higher basket required a higher trajectory, which generally required shooting from farther out but favored shorter players shooting inside against taller players and resulted in rebounds falling closer to the goal. Passing, driving, and fouling were favorably affected by the higher goal. Questionnaire returns from 21 collegiate coaches indicated that they liked the present game and favored not changing without extensive research.

394. WATSON, Marion Richard. An investigation of physical aptitude examination scores as a criterion for the successful selection of candidates for appointment to the Air Force Academy. M. A. in Physical Education, 1965. 57 p. (F. B. Jones)

USAF Academy records for the 1962, 1963, and 1964 graduation classes were made available by the Registrar. Cadets scoring high on the physical aptitude examination participated in more extracurricular activities, possessed more esprit de corps and leadership attributes, adjusted more easily and were more apt to graduate than less physically qualified cadets. The PAE seemed useful for eliminating potential failures although it was not a valid predictor of academic success or order of merit at graduation from the Academy.

395. WEADOCK, Thomas R. Comparative developmental outcome to students from physical education between programs conducted five days per week and two days per week. M. A. in Physical Education, 1965. 59 p. (F. B. Jones)

A comparison of physical fitness test results from Lima Senior High School in Lima, Ohio, and Encina High School in Sacramento, California, showed no significant differences between programs conducted two and five days per week.

396. WOODWARD, Elizabeth N. The role of the school nurse as perceived by principals and nurses. M. A. in Health Education, 1966. 146 p.

Questionnaire returns from principals and school nurses in the Sacramento

City unified school district during 1964-65 showed differing emphases and practices as required between schools but consensus between administrators and nurses concerning the nurse's role and conformity with functions recommended in the literature.

San Diego State College, San Diego, California (F. P. Cullen)

397. CALDERWOOD, Ethel Alice. A study of the attitudes of college women toward three specific physical activities. M.A. in Physical Education, 1966. 79 p. (W. D. Ross)

398. FOSTER, Edward C. A history of scientific research on isometric and isotonic exercise between 1945-1965. M.A. in Physical Education, 1966. 241 p. (F. L. Scott)

399. FRIEDMAN, Abraham M. Relationship of a rhythmic motor response to selected tempi. M.A. in Physical Education, 1966. 63 p. (W. D. Ross)

400. GECK, Pete Richard. Effects of a fitness enrichment program on sub-fit adolescent boys. M.A. in Physical Education, 1966. 65 p. (W. D. Ross)

401. GEHRING, Martin Richard. The relationship of leg movement to running velocity. M.A. in Physical Education, 1966. 51 p. (W. H. Phillips, Jr.)

402. IMLAY, Robert Curtis. The physiques of college baseball players in San Diego, California. M.A. in Physical Education, 1966. 107 p. (J. E. L. Carter)

403. JOHNS, Edward, Jr. A survey of the carry-over value of the required program in physical education for men at San Diego State. M.A. in Physical Education, 1966. 120 p. (A. W. Olsen)

404. KESSLER, Lois Prothero. Teachers' attitudes toward teaching health. M.A. in Health Education, 1966. 65 p. (R. W. Grawunder)

405. LOTTERMOSER, Dennis Richard. Cardio-respiratory fitness changes of seventh grade boys. M.A. in Physical Education, 1966. 86 p. (J. E. L. Carter)

The problem was whether the 880-yd. run-walk recommended in the San Diego City Schools Guide was strenuous enough to warrant inclusion in the physical education program. Two grade 7 physical education classes of equal physical fitness served as subjects. One class ran 880 yd. daily in addition to the normal program and both classes were tested before and after the 8-week program. The control group did not increase their cardiorespiratory endurance. The experimental group improved significantly in the 600-yd. run-walk (-4.4 sec.) and the Kasch pulse recovery test (6.9 counts) but not in the McCloy endurance run (0.8 points). The 600-yd. run-walk proved best in terms of administration, reliability, and sensitivity to change.

406. MUSTOL, Beryl. Health instruction in the secondary schools of the San Diego unified school district. M.A. in Health Education, 1966. 158 p. (L. A. Harper)

407. SUCEC, Anthony Arnold. Oxygen uptake in middle-aged males participating in an adult fitness program. M.A. in Physical Education, 1966. 97 p. (W. D. Ross)

408. TURNER, Jay Mason. An analysis of tennis volley technique. M. A. in Physical Education, 1966. 80 p. (G. Ziegenfuss)
Volleying was broken down into 20 body and racquet actions covering getting into position, hitting, and following through. Five professional tennis instructors were interviewed concerning the mechanical, anatomical, and quantitative aspects of volleying. They agreed that the power came from the legs thrusting the body forward, turning the shoulders, and either extending the elbow or swinging the arm from the shoulder. They favored the Eastern forehand and backhand grips but did not agree on one perfect volley style.

Smith College, Northampton, Massachusetts (E. E. Way)

409. BOUTON, Jean M. A comparison of two methods of teaching tennis to beginners. M.S. in Physical Education, 1966. 95 p. (E. E. Way)
The amount of learning as a result of application of the traditional method of teaching was compared to that occurring from the techniques developed by the Leighton-Barta National Tennis School. The two methods were equally effective on the college level.

410. COOPER, Carol. A study of the relationship of increased isometric strength and sprint crawl performance. M. S. in Physical Education, 1966. 57 p. (E. E. Way)
Using a cable tensiometer and a quadrant, the subjects were tested for strength of shoulder extension at 60, 75, and 90°. The experimental group exercised two times a week for 6 weeks and strength gains were significant. Although there was a substantial relationship between strength at 90° and sprint crawl performance, there was no significant difference in the performance of the two groups of subjects.

411. CURTIS, Martha E. The life and contributions of Juliette Gordon Low. M. S. in Physical Education, 1966. 61 p. (E. E. Way)
This biography of Juliette Gordon Low emphasizes her contributions to the Girls Scouts of America.

412. DE SMIDT, Sally Diane. The development of a series of instructional film loops on elementary uneven parallel bar movements. M. S. in Physical Education, 1966. 132 p. and 14 film loops. (E. E. Way)

413. FICKE, Janet L. A survey of the professional preparation program in physical education at Adelphi University. M. S. in Physical Education, 1966. 108 p. (E. E. Way)
Adelphi graduates (N = 121) who had graduated since 1954 answered the questionnaire. The recommendations included: graduates should be prepared to teach in New York state at the public school level; graduates should be prepared for supervision of intramural, extramural, and special programs and demonstrations, and the program should increase the emphasis on development of skill, knowledge of the exceptional child, and a realistic consideration of problem areas of the profession.

414. MORISON, Mary Park. The development of a series of instructional film loops for the American ski technique. M. S. in Physical Education, 1966. 75 p. and 8 film loops. (E. E. Way)

415. PETRAKIS, Elizabeth. The relationship of visual perceptual speed to the learning of a motor skill. M. S. in Physical Education, 1966. 63 p. (E. E. Way)

Subjects (N = 34) had 12 periods of practice on manipulation of a labyrinthspel. During the 4 weeks of the experiment, a significant amount of learning occurred. Visual perceptual speed was determined by a tachistoscope. Visual perceptual speed may be of importance during the middle stages of learning.

416. WILLETT, Wendy Joyce. The development of educational film slides of basic sailing technique. M.S. in Physical Education, 1966. 77 p. and 37 slides. (E. E. Way)

South Dakota State University, Brookings, South Dakota

(G. E. Robinson)

417. AMIOT, Don J. A status study of the qualifications of the classroom teachers and programs in physical education of selected elementary schools. M.S. in Physical Education, 1966. 92 p. (G. B. Crabbs)

Classroom teachers in grades 1 through 6 in South Dakota, North Dakota, Minnesota, Illinois, and Nebraska were sent 370 questionnaires. The returns indicated that many taught physical education with less than a minor, and many expressed the need for the assistance of a specialist. A great many also needed a curriculum guide in physical education.

418. CHARLES, Gary L. The effect of selected explosive weight training exercises upon leg strength, free running speed and explosive power. M.S. in Physical Education, 1966. 49 p. (G. E. Robinson)

An experimental group of 20 freshman male volunteers was selected randomly from trampoline and handball classes. The experimental group underwent a 5-week explosive weight training program with four sessions per week and three circuits of the exercises per session. The groups were tested before and after the program. The experimental group made significantly greater improvement in leg strength, but not in running speed or explosive power.

419. DENEVAN, James P. A comparison of the length of two distinct rest periods in interval training as methods of increasing cardiorespiratory efficiency. M.S. in Physical Education, 1966. 51 p. (G. E. Robinson)

420. DOORN, Carol H. Motor proficiency of mentally retarded children. M.S. in Education, 1966. 37 p. (G. E. Robinson)

The Oseretsky tests of motor proficiency were administered before and after a 6-month program of remedial physical education to six boys and a girl with IQ's below 70. The results showed improvement beyond the .01 level. The correlation between motor ability and IQ was substantial. Mental retardates tended to function physically at their mental age.

421. JASPER, Judith A. The relationship of socioeconomic status and physical fitness of selected sixth grade girls in Sioux Falls, South Dakota. M.S. in Physical Education, 1966. 38 p. (G. E. Robinson)

Sixteen grade 6 girls, each from families having incomes below $5,000, from $5,000 to $9,999, and above $10,000, were tested in flexed-arm hang, sit-ups, squat-thrust, standing broad jump, and a 200-yd. run. Analysis of variance showed no significance among the three socioeconomic groups.

422. LOFGREN, Audrey J. Effects of progressive rope skipping training bouts on recovery pulse rate and strength of foot extension.

M. S. in Physical Education, 1966. 34 p. (G. E. Robinson)
Grade 9 girls (N = 100) were divided into a control group and three experimental groups having 0 to 1, 1 to 2, and 2 to 3 min. of progressive rope skipping twice weekly for eight weeks. Pulse rate recovery from a step test and foot extension strength were measured before and after the program. Rope skipping produced no significant improvement in pulse rate recovery, but the 1- to 2-min. and 2- to 3-min. programs produced a significant improvement in foot extension strength at the .01 level.

423. MARTIN, Reyna M. *A survey of the undergraduate curriculum for professional preparation in physical education at South Dakota State University*. M. S. in Physical Education, 1966. 77 p. (S. J. Marshall)
Responses from 200 graduate majors between 1946 and 1966 indicated a need for increased emphasis on activity skills and the addition of aquatics. Only 10 graduates doing advanced study were required to make up undergraduate deficiencies. Of the graduates, 14.5 percent left physical education after up to 11 years, and 37.6 percent of these gave better opportunities than in physical education as their reason for leaving.

424. MILLER, Jerry P. *Attitudes toward physical education of students enrolled in the basic instruction program in physical education at South Dakota State University*. M. S. in Physical Education, 1966. 65 p. (G. E. Robinson)
The Wear physical education attitude inventory, short form A, was administered to all students in the basic instruction program. The data were processed by IBM and compared with the results of the Oregon study. The generally favorable attitude toward physical education was enhanced among males by high school athletic participation.

425. MURPHY, Patrick J. *The effects of a constant work load isometric exercise program on arterial blood pressure and pulse rate*. M. S. in Physical Education, 1966. 47 p. (G. E. Robinson)
Nine male freshman volunteers underwent an isometric exercise program consisting of nine exercises 5 days a week for 6 weeks. Arterial blood pressures and pulse rates were recorded before and after each session. The time for arterial blood pressure to return to normal ranged from 2.7 to 6.3 min., and pulse rate recovery ranged from 2.4 to 8.8 min.

426. STERNER, Michael J. *The effectiveness of teaching the novice the soccer instep kicking technique as compared to teaching the traditional techniques of kicking the extra point in football*. M. S. in Physical Education, 1966. 37 p. (R. A. Ginn)
Twenty subjects without previous place kicking experience were equated into two groups on the basis of their Sargent jumps. Each group practiced one method for 24 days with 30 kicks/day, and the last 5 were scored. The final test consisted of 15 kicks on each of 2 days. Both techniques could be taught successfully, and the difference in improvement was not significant.

427. STORM, Wesley J. *A comparison of role perception of a university director of physical education and athletics and his reference groups*. M. S. in Physical Education, 1966. 96 p. (S. J. Marshall)
An interview schedule with 20 hypothetical administrative situations was administered to groups of physical education and athletic directors, higher administrators, equivalent administrators, and departmental faculty. An overwhelming majority of congruences according to the Fisher-Yates test of significance for 2 x 2 contingency tables indicated that the self-

role perceptions held by physical education and athletic directors conformed to those of the other groups.

428. WAGGONER, David L. A study of the status of Young Men's Christian Association physical directors in the North Central area and surrounding areas. M.S. in Physical Education, 1966. 67 p. (G. E. Robinson)

Questionnaire returns indicated that 94 percent of the YMCA physical directors held college degrees, and the largest percentage was between the ages of 24 and 26 years. The salaries ranged from $3,700 on a part-time basis to $12,500, and improved with certification, experience, and city size. An understanding of finance, budgeting, administration, sociology, psychology, counseling, and religion was desirable in addition to physical education.

University of Southern California, Los Angeles, California

(H. A. deVries)

429. ARCHER, John. Rate as a variable in resistance exercise. M.A. in Physical Education, 1966. 56 p. (A. S. Lockhart)

430. BELL, Virginia Lee. Augmented knowledge of results related to constant and variable errors and its effect upon acquisition and retention of a gross motor skill. Ph.D. in Physical Education, 1966. 127 p. (A. S. Lockhart)

431. BENSON, David W. The effect of fatigue on motor learning. Ph.D. in Physical Education, 1966. 120 p. (A. S. Lockhart)

Male college students (N = 41) were assigned randomly to two groups who practiced a juggling task before and a jumping task after, or vice versa, riding a bicycle hard enough to maintain a heart rate of 180 beats/minute for 2 minutes. The postexercise condition was considered experimental. The experimental group learned to juggle significantly better. The control group was significantly faster on the jumping task but the experimental group was significantly more accurate. Motor learning tasks were affected differentially by fatiguing conditions.

432. BOSCO, Jeanne Rego. Dance—a creative arm form: A lecture demonstration. M.A. in Physical Education, 1966. 59 p. (A. S. Lockhart)

433. BROWN, Julia M. An exploratory study of counselor-camper group relationships. Ph.D. in Physical Education, 1966. 221 p. (L. C. Smith)

Judgments concerning cabin counselors, group climate, satisfaction with camp and group membership were obtained from 144 girls ages 10 to 16 in a private camp. The youngest groups perceived their counselors more effective, more inclusive and less preclusive, more in demand, and having greater self-management than the oldest groups. A mutuality ratio varied directly with camper age and inversely with counselor effectiveness, level of demand, and self-management, but effective camper-centered counselors did not ensure a favorable group climate or satisfaction with camp and cabin group membership. Counselor behavior was related to cohesiveness in the youngest group. Development of group climate and satisfaction with counselor behavior were functions of camper age. A significant function of a cabin counselor working with a group high in mutuality was to develop a camper-counselor interpersonal effect which led to her being perceived as effective.

434. CALDWELL, Stratton. Conceptions of physical education in twentieth century America: Rosalind Cassidy. Ph. D. in Physical Education, 1966. (A. S. Lockhart)

435. CALLAGHAN, John Lawrence. Residual training effects at different percentages of working heart rate range. M. A. in Physical Education, 1966. 86 p. (A. S. Lockhart)

436. FAWCETT, Donald Franklin. Analysis of John Dewey's theory of experience: Implication for physical education methodology. M. A. in Physical Education, 1966. 54 p. (A. S. Lockhart)

437. GERBER, Ellen W. Three interpretations of the role of physical education, 1930-1960: Charles Harold McCloy, Jay Bryan Nash, and Jesse Feiring Williams. Ph. D. in Physical Education, 1966. 127 p. (E. Metheny)

Review and comparison of all relevant books and articles indicated that McCloy, Nash, and Williams started from common assumptions about the nature of man and commitments to the goals of general education but arrived at different interpretations concerning the role, objectives, curriculum, methods, and evaluation of physical education. McCloy was ultimately concerned with the personal development of the individual, Nash with the individual's happiness and adjustment to life, and Williams with development of the individual in relation to his social environment. Their ideas concerning each concept were presented in parallel form and then the evidence was integrated as a totality for each man.

438. GIBBY, Melvin Neal. The historical development of the Laguna Beach festival of arts. M. A. in Recreation, 1966. 129 p.

439. HASSAN, El Hassan. An orientation to the game of basketball for beginning players in the Sudan. M. A. in Physical Education, 1966. 79 p. (A. S. Lockhart)

440. HOLLAND, George J. The effects of limited sleep deprivation on the performance of selected motor tasks. Ph. D. in Physical Education, 1966. 84 p. (A. S. Lockhart)

Twenty-four college students were tested tri-weekly on a jumping and a hand-finger task with three trials per test and this was followed by a progressively increased bicycle ergometer work bout which was continued to exhaustion during the 4th week as a test of work tolerance. The subjects were then retested following one night's sleep deprivation. Sleep deprivation had no significant effect on jumping speed or manipulative accuracy. The range of work decrement was from 30 to 4370 mkg/min. and the mean decrement of 572 mkg/min. was significant at the .05 level. Resting heart rate was significantly depressed but working heart rate was not altered significantly.

441. KASHER, Yahov. Adaptation of softball to the physical education program for junior high school boys in Israel. M. A. in Physical Education, 1966. 56 p. (E. Metheny)

442. LYON, M. Jean. The effect of practice on three dynamic components of kinesthetic perception. Ph. D. in Physical Education, 1966. 199 p. (A. S. Lockhart)

Thirty college women practiced while blindfolded on three consecutive days with 10 trials daily executing a novel arm movement in a prescribed direction at a designated speed and with a specified final force in order to determine whether performance improved from kinesthetic perception of direction, rate, and force components in the movement. Typical motor learning curves resulted. The main errors were from underestimation. Performance in matching the specified direction, speed, and final force improved significantly but the three components were relatively specific. Certain dynamic components of kinesthetic perception may be improved through practice directed only by kinesthetic cues.

443. MOHAMED, Farida Ibrahim Osman. Criteria for the introduction of adapted physical education into the public schools in Egypt. Ph. D. in Physical Education, 1966. 169 p. (L. E. Ellfeldt)

444. O'BRIEN, Dorothy A. Theoretical foundations of dance in American higher education, 1885-1932. Ph. D. in Physical Education, 1966. 256 p. (L. E. Ellfeldt)
Review of the literature indicated that dance as a form of exercise contributing to health, grace, and all-around development predominated from 1885 to 1904 and continued with lessened emphasis to 1932. Dance as a form of movement expressive of self or music was clearly apparent from 1905 to 1932 and was evidently influenced by Delsarte and Dalcroze. Between 1918 and 1932 the major concepts of health and expression related to natural movements and educational possibilities reflected the influence of physical educators. The concepts of dance as healthful, educational, and social apparently originated inside physical education and the ideas about dance as an expressive or communicative art form originated outside physical education. The theoretical foundations of dance in American higher education between 1885 and 1932 represented a mixture of these concepts.

445. PELTON, Barry C. A critical analysis of current concepts underlying general physical education. 1966. 323 p. (L. C. Smith)
Concepts derived from the current literature were used as a basis for structured interview and questionnaire form covering program status, relation to the general college program, purposes, and current concepts in higher education. Data were obtained by interview or questionnaire from a nearly equal geographic representation based on the six AAHPER districts. Physical educators and academic deans of instruction agreed closely on the concepts characterizing the purposes of physical education programs for the general college student.

446. ROHRER, Beverly Jean. A comparative study of the performance of educable mentally retarded and intellectually normal high school girls in selected tests of motor ability. M. S. in Education, 1966. 76 p. (H. S. Slusher)

447. ROHTER, Frank D. A study of arterial occlusion during muscle contraction and joint position changes. Ph. D. in Physical Education, 1966. (J. M. Cooper)
Possible arterial occlusion sites where the distal pulse wave could be obliterated by bone, muscle, and tendon pressure during bodily movement were studied on 30 male students. The subclavian artery may be occluded by retracting the clavicle against the first rib, compressed during excursions of the clavicle and first rib, or "kinked" by retracting the clavicle against the scalenus anticus muscle. The axillary artery cannot be occluded by contracting the pectoralis muscles, stretching it across the head of the humerus, or tautening the lateral and medial cords of the brachial plexus during arm abduction. The stretched stylohyoid muscle can compress the external carotid against the mandible bone. The arteries of the lower leg may be occluded by contracting the overlying musculature. The arcuate and anterior tibial arteries may be occluded by the overlying musculature. The posterior tibial artery may be "kinked" around the malleolus bone.

448. SAMUELIAN, Margaret Mangano. Guidelines for effective modern dance lecture demonstrations. Ph.D. in Physical Education, 1967. 166 p. (E. E. Ellfeldt)

449. SHOWERS, Norman E. An investigation of some characteristics of men which seemed to be related to the degree of success in teaching college physical education. Ed.D. in Physical Education, 1966. 145 p. (J. M. Cooper)

Teacher rating scales were sent to departmental chairmen and questionnaires were sent to male faculty members in 32 California colleges and universities. Returns were received from 29 chairmen (88 percent) and 165 staff members (80 percent). One hundred twenty-five returns from men who had been teaching 10 years or less were used. Instructors were divided into high and low groups on the basis of being rated one SD or more above or below the mean. Significance was determined by the critical ratio and chi square at the .05 level. The significant findings for men rated high were that they had earned two or more degrees from one institution, were younger, had taught fewer years, were in private institutions, were not coaches, felt happier teaching in college, and wanted to work with major students. Men rated low felt that college teaching offered prestige and had been offered a position rather than seeking it.

450. SKVARNA, Carl Mathew. An athletic strength score related to running speed. M.S. in Education, 1966. 28 p. (H. S. Slusher)

451. STARR, John T. Secondary school physical education programs in Wyoming as related to professional preparation of teachers. Ed.D. in Physical Education, 1966. 138 p. (E. Metheny)

452. STOVALL, Eula. Sex differences in learning a complex motor task. Ph.D. in Physical Education, 1965. 117 p. (A. S. Lockhart)

453. THORNTON, Raymond H. The effect of food intake on the performance of selected mental and psychomotor tasks accomplished during prolonged exercise. Ph.D. in Physical Education, 1966. 265 p. (J. M. Cooper)

Five subjects in good physical condition were tested under three dietary conditions while walking for 8 hr. on a treadmill at a speed and grade which required 30 percent of their aerobic capacity. The controlled diet utilized "Nutrament," a commercial liquid food. The mental tests were a visual search task and a time perception task. The psychomotor tests involved a digit replication task, simple reaction time, and simple movement time. Grip strength, endurance grip strength, and static neuromuscular tremor were also measured. The dietary regimens had no significant effect on performance. Prolonged exercised had a significant effect on strength. Correlations of blood glucose level and performance were significant in only 5 of the 25 instances. Altering food intake to enhance mental and psychomotor performance seemed ineffective.

454. YOUMANS, John G. A history of recreational social dance in the United States. Ph.D. in Physical Education, 1966. 178 p. (J. T. Hall)

The investigation covered 35 social dances popular between 1890 and 1960 along with European imports popular from 1890 to 1910. Authorities disagreed as to names, dates, places of origin, and descriptions of typical steps for the various dances. All dances were from the Western hemisphere, and famous dancers were not very productive in social dance development. Communication systems contributed to the success of a dance and its music although dances utilizing transient popular rhythms rather than distinctive music usually only gained sectional popularity. Most of the dances were in 4/4 time, used a closed position, and required spatial progression, although after 1937 the trend was away from the closed position and toward more limited spatial requirements.

Southern Illinois University, Carbondale, Illinois (H. M. Zimmerman)

455. PUHL, Jackie. Flexibility of women and effects of specific static stretching exercises on flexibility. M. S. in Education, 1965. 97 p. (H. M. Zimmerman)
Right and left shoulder flexion and extension, trunk flexion-extension, trunk lateral flexion, and right and left hip abduction were measured with a Leighton flexometer. College women in two basic movement classes (42 total) were paired on the basis of the initial test. Both groups had regular class activities and the experimental group had additional static stretching exercises for 4 weeks before being retested. Seven members of the university gymnastics team were also tested. The women gymnasts had significantly greater (.05) right and left hip abduction and trunk flexion-extension flexibility than the "normal" sample. The experimental group showed significantly greater improvement in trunk flexion-extension, left hip abduction, and left shoulder extension.

Southwest Missouri State College, Springfield, Missouri (H. B. Falls)

456. KINSER, Jay. The effect of practicing with varied weights of basketballs on free throw skills. M. S. in Education, 1966. 31 p. (G. A. Logan)
Male college students (N = 59) were divided into four matched groups. The three experimental groups practiced free throwing with the nonpreferred hand for 4 weeks using a 1-lb., a regulation weight, and a 2.8-lb. ball. Analysis by the Mann-Whitney U test and the sign test indicated that the group using the lightest ball developed significantly greater accuracy.

457. OWEN, Jo Ann. Intelligence and its relationship to dynamic balance. M. S. in Education, 1965. 42 p. (G. A. Logan)
The relationship of IQ scores as measured by the California short-form test of mental maturity to dynamic balance as measured by the dynabalometer was investigated in 90 grade 6 boys and girls. The Pearson product-moment correlations of .309 for boys and .061 for girls were not significant at the .05 level.

Springfield College, Springfield, Massachusetts (J. E. Genasci)

458. AUGUSTA, Addison A. Relationship between grip strength and cross country running performance. M. S. in Physical Education, 1966. 37 p. (C. Shay)
The correlations between grip strength and performance were not significant and daily variations in grip strength were not predictive.

459. BENEDICT, Milton D. Testing for the purpose of predicting broad jumping ability. M. S. in Physical Education, 1966. 61 p. (E. Steitz)
The velocity of runners prior to take-off, stationary vertical jumping ability, and vertical jumping ability while running and taking off from one foot were measured and correlated with distance jumped. No single variable was a sufficient predictor of broad jumping ability. A predictor might be developed from the stationary and running vertical jumps.

460. BESSEY, Carolyn J. A survey of women's synchronized swimming programs in colleges and universities in Northeastern United States. M.S. in Physical Education, 1966. 69 p. (J. Parks)
The extent of synchronized swimming appeared related to the size of the pool, spectator facilities, qualified instructors, student enthusiasm, and previous experience in synchronized swimming of the instructors and students.

461. BROCKMEYER, Gretchen A. A survey of basic instruction physical education programs for women in selected colleges and universities. M.S. in Physical Education, 1966. 108 p. (C. Shay)
Accredited 4-year colleges and universities in New England were surveyed. Great variation was found in the number of semesters required, credit granted, absences allowed, range of activities, and manner of classifying students. Similarities were evident in the number of class meetings per week, length of classes, and organizational pattern regardless of the size or type of institution.

462. CHIPMAN, Leroy. The effects of selected music on endurance. M.S. in Physical Education, 1966. 29 p. (C. Shay)
Playing John Phillip Sousa's "Stars and Stripes Forever" while junior high school students were performing bent leg sit-ups resulted in a significant improvement.

463. DELLA MONICA, F. Peter. A comparative study of front wall accuracy in selected handball techniques. M.S. in Physical Education, 1966. 35 p. (C. Shay)
The flexion-extension stroke provided greater accuracy than the straight-arm stroke and seemed a better basis for instructing beginners.

464. FORDYCE, Richard S. A visual aid for training linebackers for Springfield College use. M.S. in Physical Education, 1966. 58 p. (C. Shay)
Significant gains in correct responses were evident when the visual aid was employed.

465. HADDAD, Allen H. A comparison of methods of executing the dive by a goalkeeper in soccer. M.S. in Physical Education, 1966. 37 p. (C. Shay)
Experienced soccer players were tested for response time using the cross-over and shuffle step and dive as executed by goalkeepers. The cross-over step proved superior. Goalkeepers were also able to move faster to the low corners than the high corners, so shooting at the high corners seemed preferable.

466. HEITMAN, Helen M. Teacher effectiveness in relationship to motor fitness and temperament grouping. D.P.E., 1966. 227 p. (A. Jewett)
Dividing high school girls into ascending quartiles on motor fitness disclosed some common temperament trait differences between the highest and lowest quartiles. Teachers apparently had greater success with certain temperament trait groups regardless of the motor fitness classification. But teachers seemed unable to determine with which motor fitness level they had been or would be most successful or to evaluate the total effectiveness of their lessons consistently.

467. KAHMS, Frederick W. Difference between sexes in factors contributing to balance. D.P.E., 1966. 128 p. (R. Frost)
Factor analysis of elementary, novel, and unpracticed static and dynamic balance test data from 114 boys and girls 8 to 11 years old showed

essentially similar factor structure, so the factors seemed common to both sexes.

468. KEILTY, Gerald C. A study of physical education in relation to the proposed nongraded high schools in New Brunswick. M. S. in Physical Education, 1966. 115 p. (J. Parks)
Physical education in the seven nongraded schools was conducted similarly to that in graded schools except for some specific differences noted in the thesis.

469. KNUDSON, Thomas A. A comparative study of the figure-8 run test and the 160-yard shuttle run test. M. S. in Physical Education. 30 p. (C. Shay)
The correlation between the two tests was fairly high but not high enough to warrant substituting one for the other. Endurance seemed to be the predominant factor in the figure-8 run and speed seemed to be the predominant factor in the 160-yd. shuttle run.

470. MARTIN, James P. A comparison of accuracy and distance using different golf driver lengths. M. S. in Physical Education, 1966. 38 p. (C. Shay)
Thirteen male golfers with handicaps ranging from -4 to +2 were tested using drivers with D2 swing weight and medium shafts 42. 5, 43. 0, and 43. 5 in. long. Distance increased as shaft length increased but accuracy did not.

471. MIDDLEBROOKS, Gwendolyn H. The effect of warming-up upon swimming performance. M. S. in Physical Education, 1966. 52 p. (C. Shay)
A brief formal warm-up had no effect on the times of experienced college varsity swimmers swimming 100 and 500 yd.

472. PHILLIPS, Freda. An evaluation of a basic skills course for college women. D. P. E., 1966. 141 p. (C. Shay)
The comparison of motor ability, physical fitness, body image, and attitudes toward physical education resulting from one semester participation in basic skills or selected activity courses showed mixed results and no consistent pattern favoring either type of program. Either type of course appeared equally valuable in the physical education curriculum.

473. POUZZNER, John G. A comparison of the resilience of a nylon and gut-strung tennis racket. M. S. in Physical Education, 1966. 32 p. (C. Shay)
The resilience of 16-gauge strings of each type strung at tensions of 50, 58, and 65 lb. was tested with an inclined plane and a stadiometer. Gut strings were more resilient at each tension and both types were more resilient at lower tensions.

474. ROBBINS, Bruce B. A comparison of methods of pivot foot position and the relationship to the speed of a pitched ball. M. S. in Physical Education, 1966. 30 p. (C. Shay)
Four foot positions on the pitching rubber were investigated. Analysis indicated that differences in foot position produced no significant difference in the speed of pitched balls.

475. SENTELIK, Michael. The relative effectiveness of two methods of exercise for first grade boys. M. S. in Physical Education, 1966. 63 p. (E. Seymour)
The "on command" and "patterns with music" methods both improved the students' physical fitness scores.

476. SHOCHAT, Elimeloch. A study of the effect on balance of two methods of teaching physical education. M.S. in Physical Education, 1966. 105 p. (J. Parks)

Two groups of grade 3 students were taught static and dynamic balance by traditional and movement-exploration methods. Both types of balance improved but the differences between the methods were statistically significant.

477. SMITH, James L. A study of physical education programs in Negro institutions of higher learning in Tennessee. M.S. in Physical Education, 1966. 94 p. (C. Shay)

Questionnaire returns from Negro and comparable Caucasian colleges indicated that these Negro colleges were relatively well-equipped to handle the individual needs for physical activity both before and after the 1954 Supreme Court ruling. Increased financial aid and enrollment were important factors in the expansion of available facilities and activities.

478. TOBIN, William T. A comparison of scores of football players and nonathletes on aptitude and achievement tests. M.S. in Physical Education, 1966. 43 p. (J. Parks)

Senior high school boys who participated in the eastern New York northern football conference in 1965-66 were compared in academic aptitude and in academic achievement as measured by the New York Regents scholarship examination with a like group of nonparticipants in any athletics. Nonparticipants generally scored higher in aptitude and achievement although mixed results were evident in some schools.

479. VAN ALLEN, Martha. An investigation using the movement exploration approach in the teaching of selected swimming and diving skills. D.P.E., 1966. 208 p. (A. Jewett)

The movement exploration concept was applied successfully to teaching swimming and diving skills. Lesson plans were developed. Problems in using this approach were identified and suggestions were made for the instructor using this method to avoid or minimize the problem and to improve learning.

480. VAUGHN, Joseph E. The effects of exercise and games activities upon the behavior, body image, and self-image of hospitalized male psychotics. D.P.E., 1966. 149 p. (C. Shay)

Gains in physical fitness, stamina, behavior, self-image concept, and body image concept were made by 60 hospitalized psychotic male patients who ranged in age from 17 to 47 years after participation in an 8-week program of formal exercise and informal games. Some intergroup differences were apparent among the exercise, games, attention, and control treatments.

481. WILSON, Shirley A. A study to determine the grade placement of basketball for girls in Georgia. M.S. in Physical Education, 1966. 90 p. (J. Parks)

Opinions were sought from women physical educators concerning when basketball and basketball lead-up games should be introduced for girls, whether teachers took into account biological and emotional factors when planning for basketball, and whether girls had changed biologically and emotionally over the past 30 years. Grade 7 was chosen as the best grade for introducing girls to basketball, and growth and development were considered.

482. WINTER, Ford W. A photographic analysis of selected twisting dives. M.S. in Physical Education, 1966. 67 p. (C. Silvia)

The analysis was based on four twisting dives executed by contestants in the NCAA one-meter championships in 1965. Specific differences in arm, head, and body movements were evident depending on whether the dive is in a layout or pike position. The twist was initiated from the board in dives where the body cannot go from a pike to a layout position.

483. ZUROFF, Sylvia J. A study of the incidence of field hockey in selected schools of the Northwest District. M.S. in Physical Education, 1966. 82 p. (J. Parks)
Questionnaire returns indicated that field hockey for girls was more prevalent in colleges and universities but relatively infrequent in high school programs. The reasons for not offering it were generally lack of facilities, lack of equipment, and unfavorable climate although some reported lack of qualified instructors and student interests.

Stanford University, Stanford, California (J. E. Nixon)

484. ROWE, Patricia A. Identification of the domain of modern dance choreography as an aesthetic discipline. Ed.D. in Physical Education, 1966. 283 p. (J. E. Nixon)
Aesthetic discipline referred to the limitations to which the choreographer (knowingly or unwittingly) submitted himself in order to carry out his intent for a dance. To avoid the flaw of educational theories of choreography which failed to subsume divergent theories of educational and studio choreographers, this study followed three major procedures. First, a theoretical framework was devised from texts on dance composition. Second, writings dealing with traditional, innovator and avant-garde choreographers were analyzed. Radiants (specific hallmarks of a creator's compositions) were singled out for selected choreographers. Third, on the basis of face validity and interdimensional integrity, four choreography experts evaluated the radiants and statements of intent. Results of the study showed that under the new theory the varied identities of traditional and avant-garde choreography could be included within the present total realm of choreography and also allow bournes to be added to that realm. The domain of choreography was thus conceived as a universal realm with two interrelated subdivisions: the unformed domain, and the bourne (the self-delimited realm of a specific choreographer).

Syracuse University, Syracuse, New York (J. H. Shaw)

485. BUTTS, Eunice Mignon. The contributions of ten selected physical education activities to physical fitness and motor ability. Ed.D. in Physical Education, 1966. 161 p. (J. H. Shaw)
The Fleishman basic fitness test and Scott motor ability test for college women were administered at the beginning and end of a semester to a total sample of 227 undergraduate women at Central Methodist College who were enrolled in badminton, basketball, bowling, fencing, field hockey, folk dancing, golf, tennis, tumbling-trampolining, or volleyball classes. All activity groups improved in physical fitness and general motor ability during the semester. The significance of gains was tested with Fischer's t for paired scores. Basketball, field hockey, and tennis contributed to the most significant gains in physical fitness and general motor ability. Badminton and fencing contributed the least to physical fitness and general motor ability.

Teachers College, Columbia University, New York City (R. Kraus)

486. MYERS, Frances Jellinek. A descriptive study of college women's performing groups: Groups of sixteen or more girls who perform precision drilling, and/or twirling, and/or dancing at college athletic events. Ed. D. in Physical Education and Dance, 1966. 305 p. (R. Kraus)

Ninety-eight college and junior college groups were identified and 80 group sponsors returned questionnaires concerning group size, cost, leadership, scholarships, honors and benefits of group membership. Fifty-one sponsors responded to a second questionnaire concerning selection of participants, creation of routines, teaching methods, administration, and the backgrounds of directors and choreographers. Relevant guidelines for women's performing groups were developed.

Temple University, Philadelphia, Pennsylvania (A. L. Olson)

487. BAKER, Elliot. Psychological factors affecting competitive performance in middle and long distance running. M. Ed. in Physical Education, 1966. 121 p. (J. B. Oxendine)

College middle and long distance runners (N = 32) served as subjects. Their Edwards personal preference schedule results were compared for differences with the group divided according to their competitive, level of aspiration, and psychological stress classifications which were based on their 1965 season performances. The discriminant function indicated that the runners differed on some personality traits from college student means and that the psychological characteristics had some relation to performance, aspiration, and ability to react to stress.

488. BRIGLIA, Domenick M. Criteria for establishing or evaluating programs of student teaching in physical education. Ed. D. in Physical Education, 1966. 285 p. (N. L. Sheets)

A questionnaire was prepared from the literature and from personal interviews with educators in student teaching programs. Educators (N = 521) from five different types of educational institutions judged the items in the questionnaire. Favorable items were then submitted to a jury of 30 each state, city, and college directors of physical education. Chi square was used to evaluate differences for the five groups of educators and the three jury groups. The findings indicated that 48 items in five categories were sufficient to establish guidelines for new problems or to evaluate existing programs of student teaching.

489. BROWN, Richard L. The relationship of Philadelphia's public school physical fitness screening test to the Rogers physical fitness index battery, the Oregon simplification battery, and the 600-yard run-walk. M. Ed. in Physical Education, 1966. 72 p. (W. H. Greene)

A stratified random sample of 120 boys from grades 4, 5, and 6 served as subjects. The screening test items in the Philadelphia test were one-min. sit-ups, floor push-ups, pull-ups, and 30-sec. squat-thrusts. The results indicated a moderate relationship between the screening test items and the items in the PFI battery involving muscular strength and endurance. Relationships between the simplified strength index (SI) and physical fitness index (PFI) compared closely to those obtained for the regular SI and PFI. Low relationships were found between muscular strength and endurance and cardiovascular endurance, as measured by the 600-yd. run-walk.

490. GALLAGHER, Neil E. Pre-positioning and its effects on muscle activity. M. Ed. in Physical Education, 1967. 57 p. (D. F. Mapes)

Pre-positions of the foot (inverted, neutral, and everted) were studied for their influence on the electromyographic tracings of six muscles during dorsal flexion, plantar flexion, inversion and eversion passive, and assistive exercise. Ten male students served as subjects. The integrated electromyograms treated with analysis of variance indicated that isolated muscle action of the soleus, the gastrocnemius, and the tibialis anterior occurred only after a neutral pre-position; combined muscle activity of the prime movers and of the accessory movers occurred with inversion or eversion, and no action potential was evident during passive motion.

491. KINDIG, Louise E. Estimation of body fat of college women from densitometric and anthropometric measurements. Ed. D. in Health and Physical Education, 1967. 114 p. (A. L. Olson)

Body density determined by water displacement was the criterion for estimating body fat. College women (N = 99) selected at random from Temple University freshmen served as subjects. Three width, five girth, and seven skinfold measurements were taken for each subject. The *r* for determining body density was .518 with abdominal skinfold, iliac skinfold, and the triceps skinfold the best predictors. The regression equation was $X_1 = 1.0582 - .00137X_2 + .00088X_3 - .00071X_4$. T-scales were constructed for all measures.

492. MITTEN, Robert M. The chronic effects of cigarette-smoking on the development of endurance. Ed. D. in Health and Physical Education, 1966. 130 p. (D. R. Hilsendager)

Tests were administered to 26 nonsmokers and 26 smokers before, during, and after they underwent a circuit-training program designed to improve their endurance. The data obtained from these male college students were treated with analysis of variance and covariance. The endurance of the subjects, regardless of their cigarette-smoking habit, was significantly increased by a systematic program of circuit-training. The nonsmokers had more endurance than the smokers before, during, and after training. The gains in endurance made by the nonsmokers from circuit-training were not significantly different from those of the smokers.

493. SCHWARTZ, Samuel. The validity of the human dentition as an indicator of physical maturity of boys ranging from seven years to twelve years and six months of age. Ed. D. in Health Education, 1966. 189 p. (T. W. Evaul)

The number of erupted permanent teeth and formation of the lower right or left second permanent molar were evaluated as indicators of the physical maturity (skeletal age) of 171 boys enrolled as patients in the Klahr children's dental clinic at the Temple University School of Dentistry. Each of the human dentition variables were valid indicators of physical maturity only at the extremes of the ages studied (7-8.5 and 11-12.5 years of age).

494. WERTZ, Carol A. Telemetered heart rates of college women in physical education classes. M. Ed. in Physical Education, 1967. 57 p. (R. L. Liverman)

Heart rates were telemetered during preclass, 30-min. of class activity and during a 10-min. postclass period in the activities of badminton, fencing, fitness and weight control, fundamentals, and volleyball. Subjects were 10 girls selected randomly from the girls enrolled in each class. Analysis of variance indicated that 30 min. of activity in a badminton class produced greater stress, as indicated by cardiac cost, than 30 min. of fitness and weight control, fundamentals, or volleyball.

495. WINNICK, Joseph P. The relationship between selected elements of physical fitness and the caloric cost of standardized exercises. Ed. D. in Health and Physical Education, 1967. 207 p. (A. L. Olson)

The measures representing the elements of physical fitness included the Rogers physical fitness test, the bar hang test, the Harvard step test, and a progressive work test. The standardized exercises for which caloric cost was determined included pedaling a bicycle ergometer, performing sit-ups, and performing a step-up exercise. Subjects were 16 male volunteer college students who weighed between 146 and 166 lb. The results indicate that the elements of physical fitness tested were not significantly related to the caloric cost of exercise.

Texas Technological College, Lubbock, Texas (R. A. Berger)

496. BLASCHKE, Leon Audrey. Comparison of the relationships between physical fitness and dynamic and static strength. M.S. in Physical Education, 1965. 61 p. (R. A. Berger)

497. COPPEDGE, Norman Gerald. Effect of strength on the accuracy of basketball shooting. M.S. in Physical Education, 1966. 54 p. (R. A. Berger)

498. DAVIS, Billy J. Comparison between athletes and nonathletes on academic achievement. M.S. in Physical Education, 1966. (R. A. Berger)

499. EASON, Bobby Lee. Vital capacity as a predictor of physical performance. M.S. in Physical Education, 1966. 46 p. (R. A. Berger)

500. EVANS, Floyd Collins. A history of varsity basketball at Texas Technological College. M.S. in Physical Education, 1965. 56 p. (R. A. Berger)

501. FAIRLEY, Jerry. History of track and field at Texas Technological College. M.S. in Physical Education, 1965. 67 p. (R. A. Berger)

502. FLANAGIN, Charles Leroy. Relationship of body type to physical fitness performance. M.S. in Physical Education, 1964. 22 p. (R. A. Berger)

503. HARDAGE, Billy Dean. Effect of maximum loads for each of ten repetitions on strength improvement. M.S. in Physical Education, 1966. 32 p. (R. A. Berger)

504. HARRIS, Michael Wiley. Comparison of three different methods of weight training on strength and endurance. M.S. in Physical Education, 1965. 37 p. (R. A. Berger)

505. HAWLEY, Lewis Eldon. Determination of dipping strength from dips performed at body weight. M.S. in Physical Education, 1963. 18 p. (R. A. Berger)

506. HENDERSON, Joe Mack. The relationship of static and dynamic

strength to power. M. S. in Physical Education, 1963. 20 p. (R. A. Berger)

507. HOOVER, Donald Wayne. A comparison of two methods of teaching for the improvement of pull-up strength. M. S. in Physical Education, 1965. 21 p. (R. A. Berger)

508. LEWIS, William Forrest. Effects of a scientific swimming program on cardiovascular fitness and strength. M. S. in Physical Education, 1966. 22 p. (R. A. Berger)

509. LITTLEFIELD, Donald H. Comparison between athletes and nonathletes on selected psychological characteristics. M. S. in Physical Education, 1966. 43 p. (R. A. Berger)

510. MABEE, Daniel De Lancey. The relationship of strength to dynamic physical performance. M. S. in Physical Education, 1965. 22 p. (R. A. Berger)

511. SEGRIST, Kal Hill. Student attitudes toward the required physical education program for men at Texas Technological College. M. S. in Physical Education, 1965. 48 p. (R. A. Berger)

512. STRICKLAND, Edward D. Evaluation of physical education programs and facilities in selected AAAA high schools in West Texas. M. S. in Physical Education, 1965. 46 p. (R. A. Berger)

513. YARBROUGH, Charles Wayne. The effects of isometric training on physical fitness. M. S. in Physical Education, 1965. 21 p. (R. A. Berger)

University of Texas, Austin, Texas (L. W. McCraw)

514. BURDESHAW, Dorothy. Learning rate of college women in swimming in relation to strength, motor ability, buoyancy, and body measurements. Ed. D. in Physical Education, 1966. 200 p. (L. W. McCraw)

This study explored the relationship of strength, motor ability, buoyancy, and body measurement with the learning rate of Negro and Caucasian college women in beginning swimming. Nonswimmers (N = 57) received instruction during two 45-min. classes each week for 8 weeks. Results suggested that buoyancy and body measurements influenced achievement in swimming more than motor ability or strength. Although superior in motor ability, the Negro subjects experienced greater difficulty in learning swimming skills, particularly those skills demanding buoyancy.

515. BURNHAM, Stanley. A comparison of isotonic and isometric exercises in the development of muscular strength for individuals with different levels of strength. Ed. D. in Physical Education, 1966. 148 p. (L. W. McCraw)

College men (N = 148) participated 3 days a week in one of the following programs: isotonic exercises for 10 weeks, isotonic exercises for 5 weeks followed by 5 weeks of isometric exercises, isometric exercises for 10 weeks, or isometric exercises for 5 weeks followed by 5 weeks of isotonic exercises. The multiple linear regression analysis revealed no significant differences between isometric and isotonic programs in developing muscular strength of the arms or legs for either the group as a whole or for the different initial strength levels.

516. JOHNSON, Marion Lee. Construction of sportsmanship attitude scales. Ed. D. in Physical Education, 1966. 174 p. (L. W. McCraw)

Alternate form sportsmanship attitude scales were developed using the scale-discrimination technique. The initial set of 152 items were descriptions of ethically critical sportsmanship behavior. Items for the initial set were drawn from a nationwide study of critical incidents in athletics reported by a previous researcher. The two scale forms were evaluated for reliability, reproducibility, and empirical validity, using 102 junior high school boys and girls as subjects. A reliability coefficient of .856 was obtained between form A and form B for the single test administration. Coefficients of reproducibility of .812 and .963 were obtained for form A and form B respectively.

517. LANG, Lucile M. The development of a test of rhythmic response at the elementary level. M. Ed. in Physical Education, 1966. 128 p. (M. Alderson)

Five tests of rhythmic response designed to measure tempo continuation, metrical accent discrimination, musical phrase recognition, rhythmic pattern repetition, and basic step performance were constructed. Using data from 230 subjects, percentile norms were constructed for girls, ages 9 through 13. The test battery had a reliability of .91 and an objectivity of .81 to .93 on the basis of ratings of four judges.

518. WARREN, Carrie Lee. An investigation of the group approach to weight reduction and improvement of physical fitness in college women. Ed. D. in Physical Education, 1966. 110 p. (L. W. McCraw)

College women (N = 68) participated in one of two programs designed to reduce weight, fatfold and girth measurements, and to develop physical fitness. One group participated in a regular physical education class and the other met one hour each week for a program of exercises and group discussions of dietary problems. Significant improvements from the pretest to post-test were observed in both groups with slightly greater improvements for the discussion group.

519. WYRICK, Waneen. Comparison of motor creativity with verbal creativity, motor ability, and intelligence. Ed. D. in Physical Education, 1966. 218 p. (L. W. McCraw)

This study explored the relationship of motor creativity with motor ability, intelligence, and certain factors of verbal creativity, using 102 college freshman women. Motor creativity was assessed through use of three motor tests, each yielding scores of motor fluency and motor originality. The data failed to substantiate the common supposition that high motor ability is a requisite for motor creativity and to support the hypothesis that verbal creativity tests may be used to predict motor creativity.

Texas Woman's University, Denton, Texas (A. S. Duggan)

520. AVNER, Lee. A pilot study involving the development, presentation, and evaluation of a programmed text in sex education for college or university students. M. A. in Health Education, 1966. 154 p. (J. Rosentswieg)

McHugh's sex knowledge inventory, form Y, was administered to two groups of 37 students each at the University of Florida before and after one group had programed instruction in sex education. The results showed that programed instruction was a valuable and informative experience.

521. CARTER, Ginger Kelley. A study of the relationship between specific conditioning exercises and selected skills in badminton and archery of freshmen women students enrolled in physical education classes at Amarillo College in Amarillo, Texas. M.A. in Physical Education, 1966. 114 p. (J. Rosentswieg)
The Fleishman vertical jump and leg lift, Scott and French push-up from knees and obstacle race, Hyde archery skill test and Miller wall volley test of badminton ability were administered before and after a 14-week period during which 23 control subjects had archery and badminton instruction and 29 experimental subjects had similar instruction plus specific conditioning exercises. The experimental group acquired a significant advantage in arm and shoulder girdle strength but showed no significant advantage in either the activities or the other fitness measures.

522. CHANEY, Dawn S. The development of a test of volleyball ability for college women. M.A. in Physical Education, 1966. 100 p. (J. Rosentswieg)
The test of setting up the ball consisted of volleying against a wall above a line 10 ft. high. Women (N = 143) at 3 skill levels were tested. The test reliability for the whole group was .88. The validity coefficient with Clifton's single hit volley test was .73 for the whole group and it increased as skill increased. Ratings by three judges during volleyball games gave higher validity coefficients than Clifton's test, so the original test seemed valid and reliable.

523. HILL, Madeline. The development of a program of dance therapy for preschool boys and girls at the Juliette Fowler Home for Children in Dallas, Texas. M.A. in Dance and Related Arts, 1966. 210 p. (C. Sherrill)
Dance therapy lessons were given 5 days a week for 4 weeks to 13 children ages 3 through 6 years. Personnel at the Home completed rating scales before and after the program. Observations recorded daily during the program also provided data for the case studies. The results indicated that the dance therapy program relieved the routine of institutional life, contributed to developing positive social behavior, and enriched the cultural background of the subjects although a longer program was needed to verify measurable behavioral changes.

524. HOYLE, Dorothy B. A study of five children with dyslexia in an experimental program of physical education. Ph.D. in Physical Education, 1966. 299 p. (B. Myers)
The program was developed at Purdue University with the assistance of Newell Kephart and used with five dyslexic boys at St. Christopher's Corrective Learning Center in Lubbock, Texas. The case study data were gathered by observation of performance and attitude in class and also through interviews with parents, teachers, physicians, and psychologists. Each dyslexic boy showed evidence of improvement in physical skills, social relationships, emotional development, and school achievement by the end of the fall quarter and marked improvement by the end of the spring quarter. Their attitude toward themselves and their difficulties also improved.

525. MARTIN, Arlene M. Color kaleidoscope: A suite of aquatic art compositions utilizing color as the thematic source. M.A. in Physical Education, 1966. 152 p. (J. Rosentswieg)
The suite was choreographed and produced for a series of public performances with recorded music and the help of 12 members of the synchronized swimming group. An introductory poem contributed to the mood and content of each composition with "White" representing purity

and innocence, "Gold" representing greedy, grasping, and materialistic, "Pink" portraying coy, frivolous, and feline, "Black" representing fear of darkness and the forces of light in conflict with those of darkness, and "Kaleidoscope" consisting of floating patterns with varied movements of the arms and legs.

526. PHILLIPS, Jacqueline. A study of fourteen blind mentally retarded students in an experimental program of physical education activities. M.A. in Physical Education, 1966. 221 p. (C. Sherrill)
The program of selected basic movements involved playground apparatus and a minimum of 30 individual sessions with the children, ages 8 through 18, at the Denton State School. The comprehensive case studies included the social history, psychological status, developmental progress, leisure time interests, and previous physical education experience of each child. Educable mentally retarded blind children profited from both group and individual instruction and the trainable mentally retarded blind children profited from individual instruction. Recommendations were made for planning and conducting physical education activities for blind, retarded children.

527. SMITH, Carole. Current practices employed in the teaching of the grip, address, and swing to beginners in golf and the assessment and correction of common faults. M.A. in Physical Education, 1966. 130 p. (B. Lyle)
A questionnaire based on controversial practices according to articles on golf was distributed to 105 leading men and women golf teachers, with a 60 percent response. The consensus in teaching beginners was to use the overlapping grip, square stance with the left foot toed out slightly, the club almost a straight extension of the arms, a one-piece backswing, and initiation of the downswing by a lateral hip slide. The common faults included improper weight distribution and weight shift, premature uncocking of the wrists during the downswing, and failure to extend the arms in addressing the ball. The major corrective measures included emphasis on maintaining good body balance and relaxation, maintaining firm finger pressure with the left hand, initiating the downswing with a lateral hip slide, and turning the right shoulder under as the clubhead moved through the hitting zone.

528. TAYLOR, Z. Ann. The development of a core curriculum in health and safety education for trainable mentally retarded children. M.A. in Health Education, 1966. 240 p. (C. Sherrill)
A 10-week program covering personal and community health and safety was developed for and presented to nine children at the D. W. Gilbert School in Irving, Texas. Experiences in arts and crafts, music, language development, and physical education were used as media for developing understandings, attitudes, and practices. Their case studies indicated that they made observable progress toward achieving self-realization, developing desirable human relations, attaining economic efficiency, and assuming civic responsibility.

University of Toledo, Toledo, Ohio (J. N. Drowatzky)

529. COOPER, John Kenneth. Physiological responses of young predicted coronary-prone personalities. M.Ed. in Physical Education, 1966. 53 p. (J. Burt)
Randomly selected students in the required physical education program were given an "emotional stability" test as an index of coronary proneness. The seven prone and eight nonprone subjects were given a modified Harvard step test to indicate physical fitness, and venous blood

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samples were drawn before and at 1 and 4 hr. after ingestion of a fatty meal and before and 2 and 5 hr. after dextrose ingestion. The Mann-Whitney U test results showed no significant differences between the prone and nonprone subjects in fat tolerance, glucose tolerance, or physical fitness.

530. LONDEREE, Ben R. An investigation of the effect of four water replacement schedules upon exercise in the heat. Ph. D. in Physical Education, 1966. 109 p. (W. Updyke)
Football fatalities from heat stroke have been alarmingly high but can be prevented by adequate hydration, salt replacement, and acclimatization. The present hypotheses tested were that cold water ingested before or early in practice was better than later and that two separate, smaller doses were better than a single dose. Ten moderately well-conditioned and partially acclimatized male students ran on the treadmill in full football attire under simulated practice conditions at 90 F. and 70 percent humidity. The subjects ran on 5 consecutive days under four 1-liter water replacement schedules and a control of no water replacement to test the early-late and whole-part hypotheses. Rectal temperature, heart rate, pulse pressure, whole blood and plasma specific gravity, and weight loss were measured periodically during the hour-long session. Early ingestion of cold water was better than late although the advantage tended to reduce toward the end of the session. Results concerning the whole-part hypotheses were mixed but all hydration conditions were significantly better than the control. Prehydration and drinking as much cold water as possible during practice seemed desirable.

531. MARTIN, Ronald M. Selected anthropometric, strength and power characteristics of white and Negro boys. M. Ed. in Physical Education, 1966. 39 p. (W. Updyke)
Fifty Negro and 50 white males from grade 10 in a local high school were selected randomly and measured anthropometrically. Vertical jump and isometric knee extension strength were tested. The groups did not differ in age, height, and weight. The Negro group had significantly greater (.01 level) lower leg, thigh, total leg, and foot length, standing-reach height, and vertical jump performance. The white group had greater bi-iliac width and the groups were not significantly different in knee extension strength. The two highest correlations were .28 for knee extension strength and lower leg length with vertical jump.

532. MELLING, Gary Alan. The effects of a strenuous cardiovascular training regimen in reducing postprandial lipemia. M. E., 1965. 55 p. (J. J. Burt)
Male volunteers (N = 18) who participated in a 5-week cardiovascular training program and 8 who refrained from any physical activity were tested before and after the period for height, weight, body fat, physical working capacity, and total plasma lipids. The experimental group exhibited a significant increase level (.05) in plasma lipid clearance as a result of training and the control group showed no significant change. Total lipids after fasting correlated highly with postprandial total lipids. The correlations of total fasting lipids with physical work capacity and percent body fat were negligible.

533. NEEDLE, Richard Howard. Correlates of fat tolerance, physical work capacity, and selected anthropometrical measurements. M. Ed. in Physical Education, 1967. 56 p. (J. Burt)
Male students in physical education classes (N = 47) were randomly selected as subjects and tested for height, weight, body fat, and physical working capacity. Plasma turbidity, a measure of ingested fat tolerance

was assessed after an overnight, 12-hr. fast and at 2 and 4 hr. after ingesting a standard meal with 57 grams of fat. The anthropometrical measures and working capacity were not significantly correlated with the ability to clear postprandial lipids.

534. ORING, Robert Alan. A comparison of cardio-pulmonary parameters and body composition in smokers and non-smokers. M. Ed. in Physical Education, 1966. 46 p. (P. B. Johnson)
Age, height, weight, and maximal breathing capacity were measured on 20 smokers and 20 non-smokers prior to treadmill runs at 7 mph on the level and up a 2. 5 percent grade with a 30-min. rest between runs. Heart and respiration rates were measured throughout exercise and recovery. Ventilation and exercise tidal volume were determined at the end of each run. The groups showed no significant difference in age, height, weight, fat-free body mass, ventilation volumes, or exercise and recovery heart rates. The smokers had a smaller maximum breathing capacity, a significantly smaller exercise tidal volume, and significantly higher terminal and recovery respiration rates during both runs.

535. ZUCCATO, Fay C. The relationship of selected static and dynamic balance measures to intelligence and scholastic achievement. M. E. in Physical Education, 1966. 42 p. (J. Drowatzky)
Fifty normal girls in grade 7 were selected randomly from physical education classes in Maumee Junior High School. Grade point averages were obtained from school records. Mental age and IQ were measured with the California short-form test of mental maturity. Achievement was measured with the California achievement total score and six subtest scores. Static balance was measured with the stork stand, diver's stand, and stick test. Dynamic balance was measured with the sideward leap, Bass stepping stone test, and balance beam test. Significant correlations, ranting from -. 276 to . 373 were obtained between the diver's stand and mental age, grade point average, and the total and four subtest scores of the California achievement test. The only significant correlation between balance tests was for the sideward leap with the Bass stepping stone test.

University of Utah, Salt Lake City, Utah (L. R. Geser)

536. ABEYTA, Manuel. The effects of weight training on flexibility. M. S. in Physical Education, 1966. 80 p. (O. N. Hunter)

537. BLY, Wallace. An evaluation of boys physical education programs in Lincoln and Ouachita Parish, Louisiana. M. S. in Physical Education, 1966. 65 p. (O. N. Hunter)

538. DE LOZIER, Robert C. A study of the needs of neurologically handicapped children as related to an appropriate educational program. Ed. D. in H. P. E. R., 1966. 206 p. (N. E. Randall)

539. GRIFFIN, Leon E. An evaluation of the physical education programs for men in selected universities. Ed. D. in H. P. E. R., 1966. 77 p. (N. P. Neilson)

540. HAFEN, Brent Que. An evaluation of health education in the senior high schools of Nevada. M. S. in Health Education, 1965. 58 p. (B. Moss)

541. HARDY, Richard J. Case studies of secondary school dropouts with reference to organic health problems. Ed. D. in H. P. E. R., 1966. 213 p. (L. R. Geser)

542. LAMB, Ann. The relationship of body build, motor educability, and personality. Ed.D. in H.P.E.R., 1965. 119 p. (O. N. Hunter)

543. LEE, Robert Charles. A battery of tests to predict football potential. M.S. in Physical Education, 1965. 80 p. (O. N. Hunter)

544. MARTIN, Grant. A survey of some conditions for coaching pay in Utah high schools. M.S. in Physical Education, 1966. 75 p. (O. N. Hunter)

545. MC GIVNEY, Clare Matthews. A survey of the usage and effectiveness of a physical education guide for junior high school girls. M.S. in Physical Education, 1966. 88 p. (O. N. Hunter)

546. MC LAUGHLIN, Dennis Wayne. Character training situations in interscholastic and intercollegiate football. M.S. in Physical Education, 1965. 112 p. (O. N. Hunter)

547. MERRITT, Anthony Louis. A study of the effect of a progressive isometric training program on the basketball ability of ninth-grade boys. M.S. in Physical Education, 1966. 44 p. (L. R. Geser)

548. MILNE, Richard Kenneth. A survey of half-time procedures used by high school and college basketball coaches. M.S. in Physical Education, 1966. 64 p. (O. N. Hunter)

549. RANCK, Lyle Elsworth, Jr. A follow-up study of University of Utah physical education graduates. M.S. in Physical Education, 1966. 60 p. (O. N. Hunter)

550. SEIFERT, George Gerald. Comparison of forward speed from two, two-point football stances. M.S. in Physical Education, 1966. 41 p. (O. N. Hunter)

551. SHOMAN, Alice Mae. Movement patterning of a motor skill with mentally retarded children. Ph.D. in H.P.E.R., 1966. 107 p. (L. R. Geser)

552. SIMONS, Dale Edward. A study of training rules for interscholastic athletics in Utah high schools. M.S. in Physical Education, 1966. 45 p. (O. N. Hunter)

553. SMITH, Linda. The degree to which the goals of educational and professional dance meet the selected objectives of general education. M.S. in Dance, 1966. 162 p. (E. Hayes)

554. THURGOOD, Janet. An evaluation of a program for the preparation of women physical education teachers. M.S. in Physical Education, 1966. 76 p. (B. H. West)

555. TRIPTOW, David Clyde. A history of the organization and growth of the junior tennis program in Salt Lake County. M.S. in Physical Education, 1966. 71 p. (O. N. Hunter)

556. TRUEX, Wayne Owen. A study of the attitudes of deans of instruction, faculty members, students, and chairmen of physical education departments for men regarding physical education activities in colleges and universities in the state of Illinois. Ed.D. in H.P.E.R., 1966. 196 p. (O. N. Hunter)

557. WOODBURY, Darwin Stanley. The administrative relationships between athletics and physical education in selected American universities. Ed. D. in H. P. E. R., 1966. 120 p. (O. N. Hunter)

558. YOACHUM, Bernie Dean. The medical resources available during athletic events in selected Utah high schools. M. S. in Physical Education, 1966. 45 p. (O. N. Hunter)

Washington State University, Pullman, Washington (R. C. Wiley)

559. AMBLER, Victor H. The effect of fatigue and non-fatigue upon the learning of selected basic soccer skills. M. S. in Physical Education, 1966. 50 p. (R. C. Wiley)
The McDonald wall volleying soccer test was administered before and after 12 half-hour practice sessions on basic soccer skills to a control group of 29 and an experimental group of 28 randomly selected university freshmen. The control group practiced before and the experimental group after circuit training involving shuttle run, push-ups, sit-ups, bench step, pull-ups, and Burpees. A significant gain for the experimental group over the control group at the .05 level indicated that learning under induced fatigue was superior to learning under non-fatigued conditions.

560. BARTZ, Douglas W. A comparison of upper extremity muscular endurance with occluded intramuscular circulation caused by isometric contraction between subjects with various training backgrounds. M. S. in Physical Education, 1966. 44 p. (J. M. Sweeney)
Twelve subjects trained for upper body endurance, 10 subjects trained for general circulatory endurance, and 23 subjects did not train. Horizontal push and pull strength was measured with a cable tensiometer. Endurance was measured with an ergometer using 70 percent of the maximal voluntary contraction to cause circulatory occlusion. Training for upper body endurance provided greater isometric endurance during circulatory occlusion and general body training apparently did not transfer under these conditions.

561. BLANK, Robert G. A study of the use of three targets for improving control in baseball pitching. M. S. in Physical Education, 1966. 44 p. (J. M. Sweeney)
Freshman and varsity pitchers (N = 17) practiced for 4 weeks in three groups each, using as a target an image of either the catcher's hand, the catcher's glove, or the catcher's glove and body. Their control improved collectively but the three methods proved basically similar.

562. BROWN, John. A study of relationships between certain variables involved in the toe kick. M. A. T. in Physical Education, 1966. 29 p. (R. H. Doornink)
Lower leg length, non-kicking foot placement, point of contact with the ball, and place kicking distance were measured for 20 varsity football players. Kicking distance correlated .70 with point of contact with the ball and .46 with lower leg length. Lower leg length correlated .67 with the horizontal distance from the non-kicking foot to the front of the ball, and the horizontal distance of the non-kicking foot to the saggital plane of the ball correlated .48 with the point of contact.

563. BROWNLEE, Patricia A. Energy cost of selected popular dances. M. S. in Physical Education, 1966. 44 p. (P. D. Gollnick)
The oxygen consumption during rest, while dancing the Charleston, and while dancing the Twist was measured on 21 female university students.

Expired air was collected with a Tissot gasometer and analyzed with a Fisher-Hamilton gas partitioner. The Charleston required an energy expenditure 6.36 times resting and the Twist required 4.86 times resting. A two-way analysis of variance and Tukey's w procedure showed that the Charleston required significantly more energy expenditure.

564. DAVIDSON, Anne E. Maximum oxygen uptake during two phases of the menstrual cycle. M.S. in Physical Education, 1966. 45 p. (M. Phillips)
The maximal oxygen uptake on a treadmill test was determined on 15 female university student volunteers with a Tissot spirometer and a Scholander gas analyzer during the nonmenstrual phase of the cycle. Repeat measurements during menstruation treated with t showed no significant difference.

565. DOAN, Robert. Effect of weight reduction on maximal oxygen uptake. M.S. in Physical Education, 1966. 31 p. (P. Gollnick)
Maximal oxygen uptakes of 11 varsity and freshman wrestlers were determined before and after weight reduction by running them at increasing grades on a treadmill. Maximal oxygen uptake decreased generally but not significantly. The correlation between weight loss and the decrease was .65.

566. KURTH, Stephen J. The acquisition of shooting skill in basketball using balls of different weight. M.S. in Physical Education, 1966. 25 p. (R. H. Doornink)
An experimental group of freshmen in the required program practiced shooting with a lighter-than-regulation basketball and a similar control group practiced with a regulation ball. Both groups improved but the difference was not significant.

567. QUINN, Kathleen G. The relative effectiveness of two techniques of putting the shot and the effect of a restricting device upon learning these two techniques. M.S. in Physical Education, 1966. 65 p. (R. H. Doornink)
Initial and final shot putting test data were gathered from 28 university women volunteers who were divided into four groups. Two groups used the O'Brien technique and the other two used a modified technique. One group using each method also used a restricting device. All four groups improved significantly but the differences between the techniques and between using or not using the restricting device were not significant.

568. RAUCH, Robert P. A comparison of competitive dual rope activities and an existing physical fitness program relative to physical performance of seventh and eighth grade boys. M.S. in Physical Education, 1966. 36 p. (R. H. Doornink)
Five tests of physical performance were administered to 67 boys in grade 7 and 67 boys in grade 8 before and after a 9-week period during which about half in each grade substituted dual competitive rope pulling for 5 min. of jogging and rope climbing in the usual training program. Significant gains within groups occurred on the majority of tests, and the groups using competitive rope pulling were significantly superior to the others on pull-ups and sit-ups.

569. SIMMONS, Steven W. The effect of training, detraining, and cessation of training on atropine initiated cardiac release in rats. M.S. in Physical Education, 1966. 46 p. (P. D. Gollnick)
Forty young, male, albino rats served as subjects. A control group of 10 remained in their cages except when tested. The other 30 trained in motor-driven revolving cages with the speed gradually increased to one

mph and the duration to 60 min. over 10 weeks. The "cessation" rats were then confined to their cages for 4 weeks while the "training" rats continued and the "detraining" rats had a 2-min. daily drop in training. The groups did not differ significantly in cardiac release. The non-trained controls were significantly heavier than the other three groups at the .01 level. The cessation and detrained groups were significantly heavier than the trained (.01) and the cessation group was significantly heavier than the trained group (.05). The trained group had the heaviest relative heart and adrenal weights, and the controls had the lightest.

570. SOLBERG, Charles M. The development of a challenge drill to determine abilities of football linemen. M.S. in Physical Education, 1966. 33 p. (R. H. Doornink)
The drill was developed over a 2-yr. period. The drill was administered to 14 subjects during eight practices and the results were correlated with the mean rankings of six high school football coaches who did not know the results of the drill. The results indicated sufficient reliability and validity for the drill to make it useful in determining both offensive and defensive success of football linemen.

571. STRUCK, Phyllis J. The effect of exercise and training on lactic dehydrogenase activity of heart and skeletal muscle. M.S. in Physical Education, 1966. 52 p. (P. D. Gollnick)
Male, albino rats (N = 48) averaging 244 grams served as subjects. Half of the rats swam daily, starting with a 30-min. swim and increasing 5 min. a day up to 1 hr. After 5 weeks, half of each group swam for 30 min., and all were sacrificed. In terms of actual weight, the trained rats had significantly larger adrenals but smaller spleens and ventricles than the untrained at the .01 level. In terms of relative weight, the adrenals and ventricles were significantly larger in the trained animals (.01) but not the spleens. Lactic dehydrogenase activity decreased significantly (.05) in the ventricles of the trained animals but decreased significantly (.01) in the muscles. Exercise before sacrificing resulted in a significant (.05) reduction in adrenal and spleen weight. No interaction appeared between exercise and training.

572. SUTHERLAND, Donald B. The study of circuit training as a means of developing physical fitness in first and second grade boys and girls. M.A.T. in Physical Education, 1966. 33 p. (R. C. Wiley)
An experimental group of 45 boys and girls in grades 1 and 2 had circuit training plus free play during recess for 12 weeks and a control group of 44 had free play. Comparison of fitness test data before and after the period showed mean increases for the experimental group on all items and mean increases for the control group on all items except the 30-yd. dash. The experimental group increased significantly more than the control group at the .01 level.

573. WARD, Orland O. The effect of urban park and recreation areas on surrounding residential property in Spokane, Washington. M.A. in Recreation, 1966. 88 p. (A. M. McQuarrie)
Data were obtained by interviewing 30 real estate brokers and 36 property owners selected at random from areas around three large parks. Property near or adjacent to a park was preferred, more attractive for residency, and decreased in value with distance from the park. A supervised recreation area in the park enhanced surrounding property value.

University of Washington, Seattle, Washington

(M. R. Broer and G. S. Reeves)

574. ANGELEL, Lawrence Allen. An analytical study of high school and college scholarship records of major sport award winners at the University of Washington from September, 1958, through June, 1964. M.S. in Physical Education, 1966. 114 p. (N. F. Kunde)
Data were obtained from university records and processed by IBM. The mean high school grade percentile for athletes was below the university mean for men, but the means for the pre-college entrance test were exactly equal. The high school grade point average for athletes was slightly superior to the all-male average for the university, but the University of Washington grade point average was slightly inferior. During the period studied, 49 percent of the athletes and 30 percent of the University males were graduated. Athletes from Washington and out-of-state high schools did not differ significantly.

575. BJERKE, Richard A. Relationships between self-appraised health knowledge and tested health knowledge in selected eleventh grade students. M.S. in Physical Education, 1966. 91 p. (R. K. Cutler)
Comparisons were based on a self-appraising health knowledge questionnaire and a standardized health knowledge test. The students underestimated their knowledge in every area (of 10) except mental health. The differences were significant at the .05 level for safety and first aid, drinking, smoking, and narcotics, and infection and disease.

576. CAMPBELL, Karen L. College women's retention and relearning of static and dynamic balance. M.S. in Physical Education, 1966. 162 p. (B. J. Purdy)
The Bass stepping stone, stick lengthwise, and stick crosswise tests and the roller board test were practiced in 10 daily testing sessions and were retested after 5 weeks of no practice. Balance improved with practice, was specific to the task, and was well retained. The total group evidenced reminiscence which was greater for the static than the dynamic activities. Comparison on the basis of the amount and speed of original learning indicated a greater proportion of final performance in static balance was retained by those who learned the least and the fastest originally, but that neither factor was indicative of the degree of retention for dynamic balance.

577. COURT, Reginald D. A comparison of a calisthenics program and an obstacle course program as methods of developing fitness in seventh and eighth grade boys. M.S. in Physical Education, 1966. 68 p. (C. A. Mills)
The Washington State physical fitness test was administered to 48 boys in grades 7 and 8 before and after a 2-month experimental period during which half the boys had daily calisthenics and the other half ran an obstacle course daily. The boys were selected from physical education classes at Tillicum Junior High School in Bellevue, Washington. Both programs resulted in significant within group changes in arm and shoulder strength and over-all fitness. The group running the obstacle course showed a significant gain in explosive leg power. Neither program produced significant gains in agility, endurance, or flexibility.

578. CRAWFORD, Ronald G. The status of boys' interscholastic tennis in selected high schools within the state of Washington. M.S. in Physical Education, 1966. 125 p. (C. A. Mills)
The purpose of this study was to determine the current status of boys' high school interscholastic tennis programs within the State of Washington by accumulation of data relative to administrative procedures and the availability of equipment, supplies, and facilities.

579. DRAKE, Clare J. The effects of physical conditioning on speed and strength in the performance of selected ice hockey skills. M.S. in Physical Education, 1966. 63 p. (R. K. Cutler)
Velocities of the slap and wrist shots were measured with a specially constructed ballistic pendulum. Cinematographic analysis showed that eight major muscle actions of shoulder, arm, and wrist were essential for the shots. Strength tests and an isometric exercise program were devised for the muscle groups involved in these actions. The subjects were divided into equated groups on the basis of the initial shot velocity test. The experimental group underwent a 5-week isometric exercise program. The experimental group showed significant gains on the post-test for both shots and for six of the eight strength measures. The control group showed a significant gain for one strength measure and the wrist shot. The slap shot was faster for both groups on both tests.

580. ENSLOW, David C. An analysis of basic wrestling instructional techniques recommended by selected coaches. M.S. in Physical Education, 1966. 88 p. (R. K. Cutler)
Ten college coaches were asked to specify three skills they considered basic for takedowns, reversals or escapes, and pinning. The consensus was for the single leg drop, the double leg drop, the standup, the half Nelson, the cradle, and the switch. Questionnaire returns from 10 colleges and 20 high school coaches indicated general agreement concerning the techniques for teaching these skills.

581. FISHER, Betty J. The effects of a program of physical conditioning on high school girls who are smokers and nonsmokers. M.S. in Physical Education, 1966. 77 p. (M. R. Broer)
The Washington state physical fitness test and a modified Harvard step test were administered to 40 nonsmokers and 36 smokers before and after 6 weeks of basketball and badminton instruction combined with circuit training. The nonsmokers were superior initially in squat thrusts and total physical fitness but the smokers were significantly superior in cardiovascular fitness as measured by the step-test score and recovery pulse rates. The nonsmokers were superior in every item after instruction and the differences for jump and reach, squat thrust, flexibility, and total fitness were significant. The nonsmokers improved significantly in all tests except agility and flexibility. The smokers showed significant improvement in curl ups and squat thrusts but were poorer in agility, flexibility, step-test score, and recovery pulse rate. Comparison of mean improvement showed significant differences in favor of the nonsmokers for flexibility, jump and reach, total fitness, step-test score, and recovery pulse rate. Smoking apparently did not have a detrimental effect on the development of muscular endurance as measured by squat thrusts and curl ups but did affect adversely the improvement of total physical fitness and cardiovascular fitness.

582. FRANKLIN, Barbara Joyce. The effect of a progressive period of rope skipping in beginning fencing classes on wrist flexibility and strength and on the execution of fencing parries by college women. M.S. in Physical Education, 1966. 72 p. (M. R. Broer)
Data were obtained from 48 women in two beginning fencing classes. The Leighton flexometer was used to test flexibility and a cable tensiometer was used to measure strength of the wrist in flexion, extension, abduction, and adduction. Parry-ability was rated by 3 judges. Both groups had identical fencing instruction but the experimental group skipped rope for up to 10 min. at the beginning of each class period. Neither program increased wrist flexibility appreciably. Fencing instruction plus rope skipping increased wrist and extension strength more than fencing alone but practicing fencing skills appeared more profitable than rope skipping

in developing parrying ability at the beginning level. Wrist flexibility and strength had little relationship with parrying ability at this level.

583. GRIFFITHS, LaRue. The interrelationship of motor ability, level of skill, and social acceptance of junior high school girls. M.S. in Physical Education, 1966. 113 p. (K. S. Fox)
A motor ability test and several sport skill tests were administered to 64 junior high school girls during the school year. Functional choice tests to determine social acceptance as a squadmate and as a luncheon companion were given four times during the year. The correlations between social acceptance as a squadmate or luncheon companion and motor ability or sport skill were moderate initially and became progressively lower. A high relationship between social acceptance as a squadmate and as a luncheon companion existed throughout the year but the correlations between motor ability and sport skill were consistently moderate. The highly chosen and isolates varied somewhat but the social structure of the group remained essentially constant.

584. HAAG, Herbert. An analytical survey of selected state guides and examples of physical education programs at the secondary level offered in selected school districts in the United States. M.S. in Physical Education, 1966. 194 p. (N. F. Kunde)
State directors were asked to furnish a state guide and to name five school districts with well-recognized programs. Almost all responded and 26 furnished guides, from which 20 were selected for activity program verification. Definitions, aims, and objectives were in general agreement and the close relationship of physical education with general education objectives was consistently emphasized. The required program had primary consideration and the recreation program was infrequently considered. Activities in the required program for boys and girls were closely patterned.

585. HANSON, Margie Rosann. Motor performance testing of elementary school age children. Ph.D., Education, 1965. 270 p. (A. Hayden)
Data were collected on 2840 boys and girls in 22 public schools in Minnesota having physical education 3 to 5 times/week and regular assistance from a specialist. The sample covered grades 1 through 6 and had from 220 to 250 students of each sex at each grade level. The variables included age, height, weight, intelligence, overhand throw for distance, wall pass, soccer punt, soccer wall volley, volleyball serve, softball pitch for accuracy, short potato race, pull-ups, jump and reach, rope skipping, sit-ups, Hanson shoulder test, modified Bass balance test, 50-yd. dash, broad jump, and the 600-yd. run-walk. The 360 reliability coefficients were generally high enough for evaluation on a group basis and many were high enough for individual diagnosis. The size of the reliability coefficients appeared to be influenced more by the skill and the nature of the test than by the age of the child. Boys were generally superior to girls in the same grade except in rope skipping and balance. Percentile norms were prepared for most of the motor performance tests as a basis for homogeneous grouping to eliminate the need for age-height-weight classification indices within grades and sexes.

586. HARRISON, Lewis A. The status of orienteering education in the state of Washington. M.S. in Physical Education, 1966. 98 p. (R. K. Cutler)
Orienteering education seemed desirable because of the anticipated 100 percent increase in visitor days to unpopulated areas by 1975 and the vast amount of time, money, and effort spent in searching for lost outdoorsmen. Although orienteering is prevalent as a sport and a part of

school curricula in many European countries, only two 4-year colleges and 21.4 percent of the public schools taught the basic fundamentals in Washington. Prominent individuals in outdoor recreation recommended that it be offered in public schools.

587. HUTTON, Arthur P. The relationship between Rogers' strength indices and football proficiency for varsity participants in a selected institution of higher education. M.S. in Physical Education, 1966. 71 p. (R. K. Cutler)
Rogers' strength index was administered before the season at Central Washington State College and the results of the separate test items, the strength index, and the PFI were correlated with post-season evaluation by the coaching staff and the number of quarters played in varsity games. The highest correlation (.609) was between the strength index and the quarters played, so the strength test seemed a valid test of potential playing ability.

588. IRVINE, Virginia Ann. The relationship between two tests of dynamic balance and the importance of leg and back strength to each and to these relationships. M.S. in Physical Education, 1966. 69 p. (B. J. Purdy)
The height of the center of gravity, the Bass stepping stone test, dynamometric back and leg strength, and cable tensiometer tests of left and right hip abduction, adduction, flexion, and extension were measured on 38 freshman women during the winter quarter. The two dynamic balance tests had a low positive correlation. Left hip flexion strength accounted for about three-quarters of the variance on the roller board test and back and leg strength accounted for about half of the variance on the Bass stepping stone test. Dynamic balance ability seemed specific to the particular task and largely dependent on back and leg strength.

589. KLEIN, Kathryn L. A comparison of effects of lap swimming with and without individual instruction on swimming achievement and cardiovascular efficiency of college women. M.S. in Physical Education, 1966. 100 p. (K. S. Fox)
One class (control) had conventional practice and instruction throughout the class period. The second class swam laps using assigned strokes for 10 min. during class period and the third class had individual coaching while swimming laps. The subjects included 55 college women in intermediate swimming classes. They were timed for 25 yd. using the front and back crawl, took a stroke count test developed by Kilby for the sidestroke, were given the Skubic adaptation of the Harvard step test, and took a written knowledge examination. Cardiovascular efficiency increased in all groups. Swimming laps for 10 min. proved better than conventional instruction and individual coaching further enhanced swimming achievement but the method of practice did not affect the amount of knowledge gained.

590. KNUTSON, James A. The relationship of selected statistics to team standings in major league baseball, 1961-1965. M.S. in Physical Education, 1966. 120 p. (C. A. Mills)
The rankings for annual batting, earned run, and fielding averages, slugging percentage, home runs, and runs scored were correlated with final standing in the American and National Baseball Leagues. The earned run average and runs scored had the highest correlation with league standing in both leagues for all seasons. The correlation for home runs with league standing was not significant for either league during any season. Aspects of play dealing with hitting were more significant in the National League and defensive aspects were more significant in the American League.

591. KOOTNEKOFF, John L. *A study of the academic preparations, teaching responsibilities, athletic experiences and duties of basketball coaches in the selected secondary schools in Canada, 1965-1966.* M.S. in Physical Education, 1966. 82 p. (C. L. Peek)
The survey results indicated that as a group the coaches were relatively young and inexperienced, had either high school or amateur playing experience, were assigned by their administrators to coach basketball along with other extracurricular responsibilities during the season, and received no extra salary for coaching basketball. A majority were physical education majors but a large number had not had a coaching course in basketball. A number had temporary certificates; many did not attend clinics or subscribe to professional journals concerning athletics or physical education, and only a small percentage were doing graduate work.

592. MALAN, Michael M. *The value of a selected physical education point system as an incentive to the development of physical fitness in athletic and nonathletic eighth grade pupils.* M.S. in Physical Education, 1966. 175 p. (C. A. Mills)
A group of 58 nonathletes and 18 athletes competing for physical education grades under a squad and individual point system were compared on the basis of improvement on the revised 1965 AAHPER youth fitness test with a group of 52 nonathletes and 18 athletes working under a standard teacher evaluation method. Nonathletes working under the point system improved their fitness significantly at the .01 level but the athletes did not. Athletes working under the teacher evaluation method improved their fitness significantly at the .01 level but the nonathletes did not.

593. MCGAVIN, Robert J. *The effect of different warm-up exercises of varying intensities on the speed of leg movement.* M.S. in Physical Education, 1966. 75 p. (R. K. Cutler)
The warm-up exercises consisted of a related warm-up of moderate and of high intensity, an unrelated warm-up of moderate and of high intensity and a passive warm-up that consisted of a 7-min. hot shower. The speed of leg movement was a score for one-foot tapping (horizontal abduction and adduction), two-foot tapping (flexion and extension), and leg circling (circumduction). The results of the study showed that warm-ups were beneficial to speed of leg movement and that the unrelated warm-up of high intensity was the most beneficial. Unrelated warm-ups were more beneficial than related warm-ups and a high intensity warm-up was more beneficial than a moderate intensity warm-up.

594. MISURADZE, Paul J. *The relative effectiveness of selected training programs on the improvement of the vertical jumping ability of junior high school boys.* M.S. in Physical Education, 1966. 60 p. (R. K. Cutler)
Students from a grade 7 physical education class (N = 45) were divided into three equated groups on the basis of jumping ability and then underwent 12-week programs of progressive weight training, special calisthenics, or routine exercise. Both experimental groups improved significantly at the .05 level over the routine exercise groups with a *t* for the weight training group of 2.06 and a *t* for the special calisthenics group of 2.21. But the difference in improvement for the two experimental groups was not significant.

595. MORGAN, David L. *An evaluation of physical education programs in selected schools of the state of Washington.* M.S. in Physical Education, 1965. 97 p. (C. L. Peek)
Twelve high schools in district two of the Washington Interscholastic

Activities Association were selected by chance. These schools were evaluated with the LaPorte score card number II which was completed by the physical education department head following an interview. The programs were in general adequate since the schools collectively scored above the national average on eight of the ten categories. Improvement of the district's swimming facilities, modified-individual activity program, budgeting of school funds for athletics, and medical standards were indicated.

596. OVENELL, David P. The effects of physical fitness training on the cardiovascular and physical ability test scores of selected University of Washington males. M. S. in Physical Education, 1966. 89 p. (R. K. Cutler)

Nine volunteers were tested before and after an 8-week physical fitness training program. The cardiovascular tests administered in conjunction with a standardized treadmill test included resting, exercise, and recovery heart rates and exercise duration. The physical ability tests included pull-ups, push-ups, squat-jumps, sit-ups, 300-yd. run, and a total fitness score. The Harvard fitness index was also included. Significant changes occurred in exercise heart rate, heart rate recovery, exercise duration, Harvard fatigue index, squat-jumps, sit-ups, 300-yd. run, and total fitness score.

597. RIEGER, Dennis J. A survery of physical education administration, facilities, and curriculums in the Lake Washington School District, No. 414. M. S. in Physical Education, 1966. 196 p. (N. F. Kunde)

Eleven elementary and four secondary schools in the Lake Washington School District were surveyed with the LaPorte score cards I and II. The elementary schools generally scored low with 5 below 50 percent. Their highest category was for outdoor areas and their lowest was for indoor areas. The secondary schools scored well above the national norm on 8 of the 10 categories. Their highest category was locker and shower facilities and their two lowest and subnormal areas were for swimming pools and modified activites because these were not included in their programs.

598. SNOWDEN, Benjamin D. A comparison of cross-country training methods utilized at Roosevelt High School during the 1965 season. M. S. in Physical Education, 1966. 90 p. (C. A. Mills)

The purpose was to compare the effectiveness of interval training, endurance training, and a combination of interval training and endurance training for conditioning cross-country runners at Roosevelt High. The results of the study showed that participants in each of the three training method groups improved significantly, but none of the training methods proved superior to the other.

599. SNYDER, Gary P. The effects of flexible scheduling on the achievement of male eleventh grade physical education students. M. S. in Physical Education, 1966. 189 p. (N. F. Kunde)

Progress in fitness was determined by administering the AAHPER youth fitness test at the beginning, middle, and end of the school year. Progress in motor learning depended on initial and final tests in basketball, weight training, gymnastics, and volleyball. Thirty-four subjects had flexible scheduling and 30 were on the traditional hour block-of-time. The group with flexible scheduling showed a tendency toward slightly greater improvement in physical fitness and greater learning.

600. STAUTZ, Daniel F. A history of men's basketball in the Seattle

area of the Pacific Northwest Association of the Amateur Athletic Union. M.S. in Physical Education, 1966. 84 p. (G. S. Reeves)
Data were collected primarily by reviewing newspaper files from 1921 through 1965 and from personal interviews. The voluntary support of the AAU, lack of long-term team sponsors, and reduced popular interest seemed to be factors in the decline of league membership in recent years.

601. STEENSLAND, Evan L. The relative effects of weight training and weight lifting on the development of strength and endurance in University of Washington males, 1965. M.S. in Physical Education, 1966. 138 p. (Eric L. Hughes)
The weight training program consisted of 10 barbell, 5 dumbbell, and two special exercises performed with 8-10 RM. The weight lifting program consisted of 7 barbell exercises, including the 3 Olympic lifts, performed with 3-5 RM. Both groups were tested before and after 10 weeks of training with the University of Washington weight training test with seven exercises performed for maximum repetitions (endurance) and three exercises performed for maximum lift (strength). Both groups gained significantly in strength and endurance at the .01 level. The weight training group showed slightly greater gains in strength and endurance but the difference was not significant at the .05 level.

602. TEAGUE, Gary E. The relative effectiveness of no warm-up squat thrusts and conventional warm-ups on endurance, flexibility, and speed and agility. M.S. in Physical Education, 1966. 52 p. (E. Hughes)
The levels of warm-up were none, 10 sec. of squat thrusts at maximum speed, and a longer period of side straddle hops, push-ups, sit-ups, and windmills. The tests were a treadmill run, a hurdle dodge run, and shoulder and trunk flexibility with a flexometer. The 14 subjects took all the tests after the three levels of warm-up but were divided into three groups which were tested in different orders. Neither warm-up improved running endurance or agility significantly but both warm-ups improved flexibility at the .01 level.

603. WENNERLIND, Donald C. The relationship of physical fitness scores to intelligence scores of mentally retarded boys. M.S. in Physical Education, 1966. 71 p. (J. A. Torney)
The Washington State physical fitness test was administered to 248 mentally retarded boys at the Pacific Prevocational School in Seattle. The boys were divided on the basis of the Wechsler intelligence test for children into a low group with IQ's from 45 to 62 and a high group with IQ's from 63 to 80. These groups differed significantly in the strength and agility items and in total fitness. The correlation between fitness and IQ was .35. The Negro boys had higher means on all fitness test items than the Caucasian boys and were significantly high in chins, dips, jump-reach, total strength, agility, and total fitness.

Wayne State University, Detroit, Michigan (P. Berlin)

604. ASHLEY, Shirley J. A survey of the physical education activity interests of Detroit public high school girls. M.Ed., 1966. 93 p. (P. Berlin)
Girls (N = 2,000) in grades 9 through 12 in 20 Detroit public high schools checked the seven activities they would like to take and the seven they thought they ought to take from a list of 35 activities. The rank order of the "like to take" activities was bowling, tennis, basketball, softball, skiing, volleyball, and swimming. The rank order of the "ought to take"

activities was exercises, swimming, life saving, gymnastics, basketball, physical fitness tests, and tennis. The rank order of the activities most frequently offered in the program was basketball, modern dance, volleyball, exercises, badminton, physical fitness tests, and softball. The rankings varied somewhat with grade level.

605. SMITH, Joy C. McC. Problem solving in movement education. M. Ed., 1966. 162 p. (P. Berlin)
The nature of problem solving was examined and its potential application in movement education was discussed. The review of studies focused on the unique meanings inherent in human movement, the learner and his perceptions, the teacher's function in the learning environment, and other environmental factors. A distinction was made between problem-centered learning and the application of known principles to new situations. Problem solving was discussed as a process employed by the learner. The teacher's function was considered in assisting problem recognition, motivation, the selection of procedures, and evaluation. Problem solving in movement education may effectively focus on the capabilities of the body and provide the base for a hierarchy of specific motor skills particularly for elementary school children. Not all situations in which the learner is required to develop a solution involve problem solving. Examples and guidelines for teachers were offered and implications for objectives, curriculum planning, and professional preparation were suggested.

West Virginia University, Morgantown, West Virginia (C. P. Yost)

606. CLOWER, Richard Allen. A study of teaching load of physical education teachers in the public secondary schools of Maryland. Ed. D. in Physical Education, 1966. 181 p. (F. J. Holter)

607. GRANELL, Vincent. A survey study of the health education and health coordination of the Florida elementary and secondary schools health programs. Ed. D. in Health Education, 1965. 210 p. (F. J. Holter)

608. SIMRI, Uriel. The religious and magical function of ball games in various cultures. Ed. D. in Physical Education, 1966. 195 p. (C. P. Yost)

University of Wisconsin, Madison, Wisconsin (J. G. Wolf)

609. BANKS, Gary C. The philosophy of Friedrich Nietzsche as a foundation for physical education. M. S. in Physical Education, 1966. 124 p. (G. S. Kenyon)
The work of Nietzsche was analyzed to determine his metaphysical, epistemological, ethical, and teleological views and to delineate his philosophy of formal education in order to avoid the inconsistencies encountered between different philosophers considered as representing the same school of thought. This led to inferences concerning the nature of a physical education consistent with his philosophy and the contribution it could make toward reaching goals that he set for education and mankind.

610. BERRIDGE, Mavis. The development of the Red Cross Water Safety Service and the Royal Life Saving Society in Canada. M. S. in Physical Education, 1966. 150 p. (G. S. Kenyon)
The development of the two societies was traced on the basis of official minutes and annual reports supplemented with material from newspapers

and books and from personal interviews and correspondence. The Royal Life Saving Society was organized much earlier and introduction of the Red Cross program generated some inevitable conflicts. Recent trends pointed toward increased cooperation and the formation of the National Lifeguard Service with uniform national standards.

611. BRUCE, Russell D. The effect of variations in ball trajectory upon the catching performance of elementary school children. Ph. D. in Physical Education, 1966. 143 p. (G. L. Rarick)
Catching competence of 480 boys and girls in grades 2, 4, and 6 was determined with a weighting scoring system under varied conditions of ball velocity, vertical and lateral angle of projection, and duration of ball flight. Catching performance improved with advancing grade level and boys were superior to girls at levels. Differences in performance were attributed to required forward-backward movement of the subjects to intercept the ball but were not attributable to variations in the vertical or lateral angle or the duration of ball flight.

612. DEGEN, Robert. The evolution of physical education at the United States Military Academy. M. S. in Physical Education, 1966. 170 p. (F. Z. Cumbee)
Historical files and annual reports were supplemented with other documents in the West Point library and with interviews to determine the cultural and institutional influences on the program during the periods 1802 to 1880, 1885 to 1923, and 1923 to 1965. Colonel Herman J. Koehler, a professional physical educator, instituted the foundation of the present course. General Douglas MacArthur instituted compulsory athletic participation. The first standard for physical education was established in 1943 and made deficiency in physical performance grounds for dismissal. Giving graduation credit for physical education began in 1944 and a physical aptitude entrance requirement was established in 1947. The Director of Physical Education became a permanent professor in 1953, the first permanent director since Koehler. The evolution of the program paralleled closely the development of physical education in the culture.

613. DUKE, Susan K. Evaluation of selected motor tests used in exempting college women from a basic course in physical education. M. S. in Physical Education, 1966. 135 p. (M. R. Liba)
The purpose was to develop motor performance criteria for exempting entering freshman women from a basic Introduction to Movement course. Ten motor tests, a posture evaluation and a written knowledge examination were used on 335 college women as a basis for assigning them to exempt, partially-exempt, high motor-low knowledge, low motor-high knowledge, or low motor-low knowledge groups. All nonexempt subjects were retested on motor skills. Group performances were compared by analysis of variance and covariance. The 10 motor tests were found to be reliable for assessing motor skills. Performance on four of these tests was altered significantly after participation in the course.

614. GENTRY, Carole D. A study of teaching load factors of selected Wisconsin high school physical education teachers. M. S. in Physical Education, 1966. 81 p. (F. A. McPherson)
A selected sample of 61 administrators and 61 women whose instructional load was solely high school physical education activity classes was surveyed. The various teaching assignment and situational factors used to assess teaching load were dichotomized into moderate or heavy on the basis of appraisals by the teachers. Most of the factors were not significantly related to the teachers' appraisals of their loads. The significant factors were: the number of assigned instructional hours per week, the number of different groups of students met each week, and the number of physical education teachers assigned to each department.

615. GRUBER, Donald A. The status of physical education in public high schools of Wisconsin since the repeal of the time requirement. M.S. in Physical Education, 1966. 177 p. (F. Z. Cumbee)
Historical background was derived from interviews, correspondence, and library sources. A 50 percent random sample of Wisconsin high schools stratified by enrollment had a 92.4 percent return. The time requirement for physical education became law in 1923 and was repealed in 1963 because the legislature felt that the program in physical education should be determined by the local schools, more time was needed for other studies, and schools were not meeting the requirement. The majority of administrators favored deleting the requirement because it permitted more flexibility in scheduling. Survey returns showed that 34.6 percent had not been meeting the requirement before repeal, 11.8 percent had reduced the time required, and 2.1 percent had increased it. Comparison with a similar study showed that 161 schools lacked at least one qualified physical educator and only 88 percent required physical education in 1930, whereas all had at least one qualified physical educator and required some physical education in 1966.

616. HUBER, Joanne C. The effect of skill improvement in the back walk-over on the response patterning of selected shoulder girdle musculature. M.S. in Physical Education, 1966. 40 p. (J. C. Waterland)
One highly skilled performer served as a criterion and three performers were tested before and after 20 instructional periods in three weeks. Fifty-two electromyographic records and 528 synchronous biplane photographs were analyzed. The highly skilled performer's electromyograms showed efficient coordination in that muscles were active when contributory and quiescent when inessential. Muscle action before learning was inconsistent but tended to become consistent during practice and unneeded muscle action would presumably have dropped out with additional practice. The pectoralis major was the "key" muscle of those studied and the contraction coincided with kicking the leading leg for the back walk-over.

617. HULBERT, Bonita A. A study of tests for the forehand drive in tennis. M.S. in Physical Education, 1966. 208 p. (M. R. Liba)
Physical Education majors enrolled in an University of Wisconsin tennis class were divided into beginning, intermediate, and advanced skill groups of 12 each. The subjects were tested on a new outdoor test for the forehand drive and the Wisconsin indoor test with the ball presented by a self-toss, a toss from a ball-projecting machine, and a toss by a partner. Both tests were scored on the basis of the sum of scores for initial velocity, distance, vertical deviation, and lateral deviation. The outdoor test was most reliable when a self-toss was used and the outdoor test proved as valid but not as reliable as the previous indoor test.

618. JONES, Robert E. A neurological interpretation of maximum isometric training and its relationship to individual training variability. Ph.D. in Physical Education, 1966. 111 p. (G. L. Rarick)
The purpose of this study was to investigate interindividual isometric strength training variability by comparing training effects with specific Isometric Propensity test deviation patterns. The study used two physical education classes of male high school students as subjects. The distribution of isometric training responses was not peculiar to any one Isometric Propensity test deviation pattern.

619. KIECKHEFER, Marjorie A. The relationship between the rope climbing ability and the arm strength of third grade children. M.S. in Physical Education, 1966. 72 p. (L. E. Halverson)

Heights and weights of 25 boys and 20 girls were measured. Grip strength was measured with a Smedley dynamometer. Arm and shoulder girdle strength was measured as the single repetition maximum with a Delorme bar and weights on a pulley system. Rope climbing ability was measured as the height climbed using both hands and feet. A significant positive correlation was found between arm and shoulder girdle strength and climbing ability but the correlations for grip strength, height, and weight were not significant. Boys possessed greater arm and grip strength than girls. Climbing ability depended partly on foot action.

620. METCALFE, Alan. The contribution of John F. Kennedy to physical education and recreation. M.S. in Physical Education, 1966. 104 p. (G. S. Kenyon)
Analysis of information derived from interviews and primary and secondary written materials indicated that President Kennedy took a strong personal interest in all forms of physical activity. However, official actions relating to physical education and physical recreation were few. In the context of physical education, he conceived his role as one of stimulation with his primary concern being the development of physical fitness. His interests in and efforts on behalf of physical education centered primarily around the conservation of natural resources, and he was influential in stimulating a legislative program to preserve and expand areas of natural beauty. President Kennedy's contribution to physical education and physical recreation was not so much the result of a planned program, but more the result of the prestige of his office and his "image."

621. O'BRIEN, Carol. The relationship between personality and attitude toward physical activity. M.S. in Physical Education, 1966. 125 p. (G. S. Kenyon)
Cattell's high school personality questionnaire and an inventory for assessing attitudes toward physical education were administered to 100 boys and 100 girls in grades 10 and 12 of a Wisconsin high school. The data were processed with correlation and regression procedures. Significant relationships between attitudes toward physical education and personality variables were: as a social experience, cyclothemia, surgency, and parmia for boys and cyclothemia, surgency, parmia, zeppia, and group dependency for girls; as health and fitness, ego strength for boys and self-sufficiency for girls; as pursuit of vertigo, dominance, parmia, and self-sufficiency for boys; as an aesthetic experience, inversely with general intelligence for boys and premsia for girls, and as an ascetic experience, ego strength, character strength, and self-sufficiency for girls.

622. OSNESS, Wayne H. A study of certain aspects of lipid metabolism during exercise. Ph.D. in Physical Education, 1966. 175 p. (B. Balke)
Non-esterified fatty acid plasma concentration, plasma pool size, plasma turnover rate, and relative utilization of six normal males were studied at rest and at one-third and two-thirds of maximum aerobic capacity (light and heavy work). Plasma concentrations of glycerol, glucose, lactate, and cholesterol were monitored throughout the tests by means of venous blood samples. Pulmonary ventilation and percent CO_2 were monitored continuously along with $C^{14}O_2$ to determine the relative oxidation of substrate from the labeled fatty acid pool. The mean non-esterified fatty acid concentration decreased 15.2 and 34.6 percent during light and heavy work. The mean plasma pool decreased from 1436 microequivalents at rest to 1202 and 100 microequivalents during light and heavy work. The non-esterified fatty acid turnover rate increased from 61 microequivalents/l./min. at rest to 136 and 198. The mean

half-life of non-esterified fatty acid in plasma was 3.93 min. at rest, 1.57 min. during light work, and .96 min. during heavy work. The fractional use of non-esterified fatty acid as a fuel increased two-fold from rest to exercise but no significant change occurred when the work load went from light to heavy.

623. PERRY, Carolyn J. A study of content and conditions related to programs of physical education for girls in the secondary schools of Wisconsin in 1964-65. M.S. in Physical Education, 1966. 109 p. (F. A. McPherson)
Two questionnaires were sent to all Wisconsin secondary schools. The first, concerning activities in the instructional and extra-class program, progression of activities in the instructional program, length of teaching units, and some administrative conditions had an 80 percent return. The second concerning facilities, equipment, and teacher preparation had a 60 percent return. The majority of schools required physical education every year so progression of activities was possible. The curriculum in the majority of schools included basketball, volleyball, softball, tumbling, fitness exercises, badminton, and archery. Units on posture, body mechanics, relaxation, and rhythmic exercises were taught in a small percentage of the schools.

624. REDDAN, William. Pulmonary characteristics of trained university oarsmen, swimmers, and cross-country trackmen. Ph.D. in Physical Education, 1965. 239 p. (G. L. Rarick)
Standard measurements of static lung volumes, ventilatory capacity, pulmonary diffusing capacity, and body blood volume were made at rest. Ventilation, pulmonary diffusing capacity, oxygen consumption, and heart rate were made during steady-state exercise on a bicycle ergometer at work loads of 600, 1000, 1400, 1800 kilopondmeters per minute. Variance analysis showed no differences among the athletic groups in pulmonary function and gas exchange at rest or during exercise when adjustments were made for differences in body size and the athletic groups did not differ from untrained college men in lung volume or ventilatory capacity at rest or in pulmonary diffusing capacity at rest or during exercise.

625. SAUNDERS, Katherine. An exploration of the relationships between camp counseling and the teaching of physical education. M.S. in Physical Education, 1966. 54 p. (F. A. McPherson)
In order to determine the objectives of education, physical education, and camping, literature and qualifications associated with success in physical education teaching and camp counseling were reviewed. Questionnaires were sent to 166 directors of private camps for girls in the eastern half of the United States, with a 68 percent return. The results indicated that many of the objectives and leadership qualifications and competencies in physical education and camp counseling were similar but the contribution of the camp counseling experience to success in teaching physical education was indeterminate.

626. SEEFELDT, Vernal D. A longitudinal study of physical growth and development in Down's syndrome. Ph.D. in Physical Education, 1965. 220 p. (G. L. Rarick)
The data included selected anthropometric measures, roentgenograms, sign of pubertal development, and X-ray assessment of skeletal maturity which were secured annually over 8 years. Normative data were used for comparison. Children with Down's syndrome were significantly retarded in all phases of linear growth although sex differences in magnitude and direction of linear growth were similar to those of normal children in the age range of 7-18 years. The onset of puberty produced growth changes in these children similar to those in normal children.

The retardation in bone and muscle tissue was substantial but the percentage of adipose tissue was greater than in normal children.

627. SMOLL, Frank L. The influence of physical growth and muscular strength upon motor performance: Within- and between-year observations. M.S. in Physical Education, 1966. 95 p. (G. L. Rarick)

Data from the grade 4 and 11 levels from 25 boys and 24 girls participating in a longitudinal growth study were used. The means and standard deviations for height and weight indicated that the subjects were similar to other child study populations. Static strength measures of the ankle extensors, hip flexors and extensors, and knee extensors were measured with a cable tensiometer. Motor performance was represented by standing broad jump and 30-yd. dash. The analysis depended primarily on zero order and multiple correlations. Height and weight, separately or in combination, were poor predictors of performance within the age and sex groups. The aggregate lower limb strength had a moderate positive relation with performance. Performance in the broad jump during adolescence can be predicted more accurately than in the dash on the basis of growth, strength, and performance taken during middle childhood.

628. STRAUB, William F. The effect of overload training procedures upon the velocity and accuracy of the overarm throw. Ph.D. in Physical Education, 1966. 220 p. (G. L. Rarick)

Senior high boys, 14-19 years of age (N = 48) were randomly selected from 1,000 and were randomly assigned to train for 6 weeks throwing regulation baseballs or balls of progressively increasing weight. Another group of 60 boys, similarly selected and assigned, were stratified into fast and slow throwers and tested to determine the effect of warming up with regulation or weighted balls. Ball speed was measured with a .01 second chronoscope actuated by photoelectric circuits. Accuracy was measured on standard targets and in terms of vertical and horizontal deviation from the target center. Since the groups were matched initially on throwing speed, a treatment-by-levels analysis of variance was used to compare final velocity differences. Analysis of covariance was used to adjust final accuracy scores for initial group differences. Differences in warm-up had no significant effect on the speed or accuracy of either high or low velocity throwers. Overload training had no differential effect on either group. Control subjects who trained with regulation balls and had equal speed and accuracy emphasis threw as fast and as accurately as subjects trained with progressive overload and speed or accuracy emphasis. Using a weighted ball produced no immediate or long-range improvement in throwing speed or accuracy.

629. THODEN, James S. An investigation of overarm throwing accuracy before and after heavy and severe treadmill exercise. M.S. in Physical Education, 1966. 73 p. (G. L. Rarick)

Eleven male freshman baseball squad members at the University of Wisconsin served as subjects. Throwing accuracy was measured before and after walking on a treadmill at 50 and 75 percent of the individual's work capacity. Neither work load affected accuracy significantly.

630. WIDULE, Carol J. A study of anthropometric, strength, and performance characteristics of men and women league bowlers. Ph.D. in Physical Education, 1966. 238 p. (M. R. Liba)

Men and women of high and average skill were measured for arm, shoulder girdle, and finger strength, height, upper arm, forearm, hand, and finger length. Their movement patterns were analyzed from slow motion firms. A 2 x 2 factorial analysis of variance (sex x skill) was used, along with Scheffé's test for multiple comparisons. The skilled bowlers did not differ in strength or length of body levers from the average bowlers. The skilled bowlers appeared to make better postural adjustments during the backswing which determined an optimum ball height at the end of the backswing and an optimum range of swing. The combination of ball velocity and weight appeared related to skill. Skilled bowlers used proportionately wider spans between the thumb and finger holes.

631. WILLS, Betty Jane. Mental practice as a factor in the performance of two motor tasks. Ph. D. in Physical Education, 1966. 125 p. (G. L. Rarick)

The effects of various combinations of mental and physical practice (ranging from zero to all of each type) in improving performance in two motor skills (manual strength and standing broad jump) were determined. The duration of practice between pretest and post-test was constant. The "one-day study" had two practice sessions spaced 2 to 4 hr. apart. The "extended study" had two practice sessions per week for 4 weeks. Mental practice alone or in combination with physical practice did not have a significant effect on performance in manual strength or the standing broad jump in either study. Combinations with three mental or three physical practices were significantly more effective in improving jumping performance than other combinations or mental practice alone, but not better than physical practice alone in the extended study. Varying proportions of the two types of practice had no differential effects by sex and age in either study.

PERIODICALS REVIEWED

*Acta Chirurgica Scandinavica
*Acta Medica Scandinavica
*Acta Morphologica Neerlando-Scandinavica
*Acta Orthopaedica Scandinavica
*Acta Paediatrica Scandinavica
Acta Physiologica Scandinavica
*Advancement of Science
*Aerospace Medical Research Laboratories Report
*Aerospace Medicine
*American Heart Journal
American Journal of Anatomy
*American Journal of Cardiology
*American Journal of Clinical Nutrition
*American Journal of Epidemiology
American Journal of Human Genetics
*American Journal of the Medical Sciences
American Journal of Medicine
American Journal of Orthopsychiatry
*American Journal of Physical Anthropology
American Journal of Physical Medicine
*American Journal of Physiology
*American Journal of Psychiatry
*American Journal of Psychology
*American Journal of Public Health and the Nation's Health
American Journal of Surgery
*American Review of Respiratory Diseases
Anatomical Record
Annals of Applied Biology
Annals of Human Genetics
*Annals of Internal Medicine
*Annals of Physical Medicine
*Archives of Environmental Health
*Archives of Internal Medicine
*Archives of Physical Medicine and Rehabilitation
Archives of Surgery
*Arizona Medicine
*Army Personnel Research Establishment Research Memorandum
*Australian Journal of Experimental Biology and Medical Science
*British Heart Journal
*British Journal of Industrial Medicine
*British Journal of Nutrition
*British Journal of Preventive and Social Medicine
*British Journal of Psychiatry (Journal of Mental Science)
*British Journal of Psychology
*British Journal of Social and Clinical Psychology
British Medical Bulletin
*British Medical Journal
Bulletin of the Johns Hopkins Hospital
Bulletin of the Los Angeles Neurological Society
California Journal of Educational Research
*California Medicine
*Canadian Journal of Pharmacology and Physiology
*Canadian Journal of Psychology
*Canadian Journal of Public Health
Cancer Research
Child Development
*Circulation
Circulation Research
*Clinical Science
*Danish Medical Bulletin
*Department of Commerce Document
Diabetes
*Edgewood Arsenal Technical Report
*Educational and Psychological Measurements
*Ergonomics
Experimental Cell Research
*Federal Aviation Agency Report
*Federation Proceedings
*Förvardsmedicin
Genetic Psychology Monographs
*Geriatrics
GP

Periodicals marked with an asterisk have research reports listed in Part II - Bibliography of this issue of Completed Research.

Growth
*Human Biology
*Indian Journal of Medical Research
International Journal of Health Education
*International Journal of Social Psychiatry
*Internationale Zeitschrift für Angewandte Physiologie
Journal of Abnormal Psychology
*Journal of the American Dietetic Association
*Journal of the American Medical Association
*Journal of Anatomy
*Journal of Applied Physiology
*Journal of Applied Psychology
Journal of the Association for Physical and Mental Rehabilitation
*Journal of Bone and Joint Surgery
*Journal of Chronic Diseases
*Journal of Clinical Investigation
*Journal of Clinical Psychology
*Journal of Comparative and Physiological Psychology
*Journal of Educational Psychology
Journal of Educational Research
Journal of Experimental Biology
*Journal of Experimental Education
Journal of Experimental Medicine
*Journal of Experimental Psychology
Journal of General Physiology
Journal of General Psychology
*Journal of Genetic Psychology
*Journal of Gerontology
*Journal of Health & Human Behavior
*Journal of Heredity
*Journal of Home Economics
*Journal of Laboratory and Clinical Medicine
*Journal of the Maine Medical Association
Journal of Nervous and Mental Disease
Journal of Neurophysiology
*Journal of Nutrition
*Journal of Occupational Medicine
*Journal of Pediatrics
*Journal of Personality
*Journal of Physical Education
*Journal of Physiology
*Journal of Psychology
*Journal of School Health
*Journal of Social Psychology
*Journal of the South African Institute of Mining and Technology
*Journal of Sports Medicine and Physical Fitness
Journal of Teacher Education
Journal of Tropical Medicine
*Lancet
*Medical and Biological Engineering
Mental Hygiene
*Military Medicine
National Conference of Social Work
Nation's Schools
*Naval Aerospace Medical Institute Report
*Naval Medical Field Research Laboratory Report
*Naval Medical Research Institute Report
*NEA Research Bulletin
*New England Journal of Medicine
*New York State Journal of Medicine
Nutrition Abstracts and Reviews
*Nutrition Reviews
Pacific Medicine and Surgery
Parks and Recreation
*Pediatrics
*Perceptual and Motor Skills
Phi Delta Kappan
Physical Educator
*Physical Therapy
Physiological Reviews
*Polish Medical Journal
*Postgraduate Medicine
Proceedings of the Society for Experimental Biology and Medicine
Psychoanalysis and Psychoanalytic Review
*Psychological Bulletin
*Psychological Monographs General and Applied
Psychological Reviews
*Psychosomatic Medicine
*Public Health Reports
*Quarterly Journal of Experimental Physiology and Cognate Medical Sciences
*Quarterly Journal of Experimental Psychology
Quarterly Review of Biology
Rehabilitation Record
*Research Quarterly, AAHPER
Revue Canadienne de Biologie
*Royal Society of Health Journal
*Scandinavian Journal of Clinical & Laboratory Investigation
School Review
School Safety
Science

Sociological Abstracts
Sociological Review
*Sociology and Social Research
Sociometry
South African Journal of Medical Science
*South African Medical Journal
Southern Medical Journal
Surgery
Swimming Pool Age
*U. S. Army Medical Research and Nutrition Laboratory Report
*U. S. Army Natick Laboratories Technical Report

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